City of Detroit
Inter-Departmental Communication

TO: Richard Doherty, City Engineer
City Engineering/Department of Public Works

FROM: Debra Singleton, Engineer
Detroit Water and Sewerage Department

DATE: August 15, 2017

RE: Petition No. 1303 Phase (1 and 2)
Request for Temporary Closure And Out Right Vacation Of Portion Of Springwells Court

The Detroit Water and Sewerage Department (DWSD) is in receipt of the subject petition. DWSD has water and/or sewer lines located within the area requested for temporary closure and outright vacated. DWSD has no objection to the temporary closure. However, for the vacation request, the Provisions for Relocation Due to Vacation including all the following conditions are to be met:

- Petitioner prepares a relocation plan for DWSD utilities, signed by a Registered Engineer ;
- DWSD approves the relocation plan ;
- Petitioner grants DWSD a satisfactory easement of 20 feet without encroachment for a water or sewer line. If both water and sewer are installed in the same easement, the easement shall be 30 feet wide;
- The Petitioner is to bear the entire cost of the proposed plan, including construction, demolition, permitting, inspection, survey, etc.

The entire work is to be performed in accordance with DWSD specifications and standards. Deposit with DWSD, in advance, the whole amount necessary to cover the costs of permits and inspection. If you have any questions, please feel free to call me at (313) 267-8309 or Mohamed Boudali at (313) 964-9236.

Sincerely,

Debra Singleton
Engineer
Permits Section

DS/MB/gl
Attachments

City of Detroit

City Engineering Division, Department of Public Works
Survey Bureau

NOTICE OF PROPOSED CHANGE IN PROPERTY

Date: 03/08/2017

Petition: x1303

- ☐ AT&T Telecommunication
- ☐ Comcast Television (CATV)
- ☐ Detroit Edison (DTE)
- ☐ Fire Department
- ☐ Great Lakes Water Authority
- ☐ Michcon (DTE)
- ☐ Planning & Development Department
- ☐ Public Lighting Authority
- ☐ Public Lighting Department
- ☐ Police Department
- ☐ Solid Waste Division, DPW
- ☐ Street Design Bureau, DPW
- ☐ Street Maintenance Division, DPW
- ☐ Traffic Engineering Division, DPW
- ☐ Water and Sewerage Department
- ☐ _____

- ☐ Berm Use
- ☐ Conversion to Easement
- ☐ Dedication
- ☒ Encroachment
- ☒ Temporary Closing
- ☒ Vacation

A petition drawing is attached. Property shown on the attached print is proposed to be changed as indicated. Kindly report (using the back of this sheet) the nature of your services, if any affected by the proposed change and the estimated costs of removing and rerouting such services (if necessary).

Please return one copy to City Engineering Division, DPW within two weeks of the submittal date. Retain one copy and print for you file.

Ron Brundidge, Director, Department of Public Works

By: Richard Doherty, CED DPW
City Engineer

2/24/2017 wlw

TO: City Engineering Division, DPW
2 Woodward Ave., Suite 642
Detroit, Michigan 48226-3462
Survey Bureau: 313-224-3970

Petition: x1303

The proposed change in property (referred to on the other side of this sheet) would affect our services as follows:

☐ Not Involved

☐ Involved; but asking you to hold action on this petition until further notice.

☐ Involved; but no objections to the property change.

☐ Involved; objection to the property change.

☐ Involved; but no objections to the property change…provided as easement of the full width of the public right-of-way (street, alley or other public place) is reserved.

☐ Involved; the nature of our services and the estimated costs of removing and/or rerouting such services are:

_____
(Utility or City Department)

_____
By

_____
Title

_____
Date

_____
Area code – Telephone number

PROVISIONS FOR TEMPORARY CLOSING

Detroit Water and Sewerage (DWSD) agrees to the proposed temporary closing of the right-of-way subject to fulfilling the following provisions:

1. Detroit Water and Sewerage Department forces shall have free and easy access to the water main and sewer facilities at all times to permit proper operation, maintenance and if required, alteration or repair of the water main and/or sewer facilities. Free and easy access shall mean that no structures or storage of materials will be allowed upon the temporarily closed street to hinder the movement of maintenance equipment.

2. Where a fence is placed across the temporarily closed portion of a street/alley, then a gate must be installed to permit access for DWSD forces. The gate shall remain unlocked 24 hours a day, unless a guard is stationed near the gate to allow the Detroit Water and Sewerage Department ingress and egress at any time to and from the temporarily closed street/alley. The minimum dimensions of the gate or gates shall provide 15 foot vertical and 13 foot horizontal clearances for freedom of DWSD equipment movement.

3. Should the water main and/or sewer facilities be broken or damaged as a result of any action on the part of the petitioner or assigns, then in such event the petitioner or assigns shall be liable for all costs incident to the repair of such broken or damaged water main and appurtenances, and the petitioner waives all claims for damages.

These Provisions for Temporary Closing must be made a part of the City Council's Resolution granting the temporary closing of the subject right-of-way.

06/27/2014

PROVISIONS FOR ENCROACHMENT
For Petition 1303

Detroit Water and Sewerage (DWSD) agree to the proposed encroachment subject to the fulfilling of the following provisions:

1. By approval of this petition the (DWSD) does not waive any of its rights to its facilities located in the right of way, and at all time, DWSD, its agents or employees, shall have the right to enter upon the right of way to maintain, repair, alter, service, inspect, or install its facilities. All costs incident to the damaging, dismantling, demolishing, removal and replacement of structures or other improvements herein permitted and incurred in gaining access to DWSD's facilities for maintenance, repairing, alteration, servicing or inspection caused by the encroachment shall be borne by the petitioner. All costs associated with gaining access to DWSD's facilities, which could normally be expected had the petitioner not encroached into the right of way shall be borne by DWSD.

2. All construction performed under this petition shall not be commenced until after five (5) days written notice to DWSD. Seventy-two (72) hours notice shall also be provided in accordance with P.A. 53 1974, as amended, utilizing the MISS DIG one call system.

3. Construction under this petition is subject to inspection and approval by DWSD forces. The cost of such inspection shall, at the discretion of DWSD, be borne by the petitioner.

4. If DWSD facilities located within the right of way shall break or be damaged as the result of any action on the part of the petitioner, then in such event the petitioner agrees to be liable for all costs incident to the repair, replacement or relocation of such broken or damaged DWSD facilities.

5. The petitioner shall hold DWSD harmless for any damage to the encroaching device constructed or installed under this petition, which may be caused by the failure of DWSD's facilities.

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Detroit Water & Sewerage Department
Provisions for Relocation Due to Vacation for Petition No 1303

Provided that the petitioner shall design and construct proposed sewers and or water mains plus make the connections to the existing public sewers and or water mains as required by the Detroit Water and Sewerage Department (DWSD) prior to construction of the proposed sewers and or water mains,

Provided that the plans for the sewers and or water mains shall be prepared by a registered engineer; and further

Provided that DWSD be and is hereby authorized to review the drawings for the proposed sewers and or water mains and to issue permits for the construction of the sewers and or water mains, and further

Provided that the entire work is to be performed in accordance with plans and specifications approved by DWSD and constructed under the inspection and approval of DWSD; and further

Provided that the entire cost of the proposed sewers and or water mains construction, including inspection, survey and engineering shall be borne by the petitioner; and further

Provided that the petitioner shall deposit with DWSD, in advance of engineering, inspection and survey, such amounts as the department deems necessary to cover the costs of these services; and further

Provided that the petitioner shall grant to the City a satisfactory easement for the sewers and or water mains; and further

Provided that the Board of Water Commissioners shall accept and execute the easement grant on behalf of the City; and further

Provided, that the petitioner shall provide DWSD with as –built drawings on the proposed sewers and water mains; and further

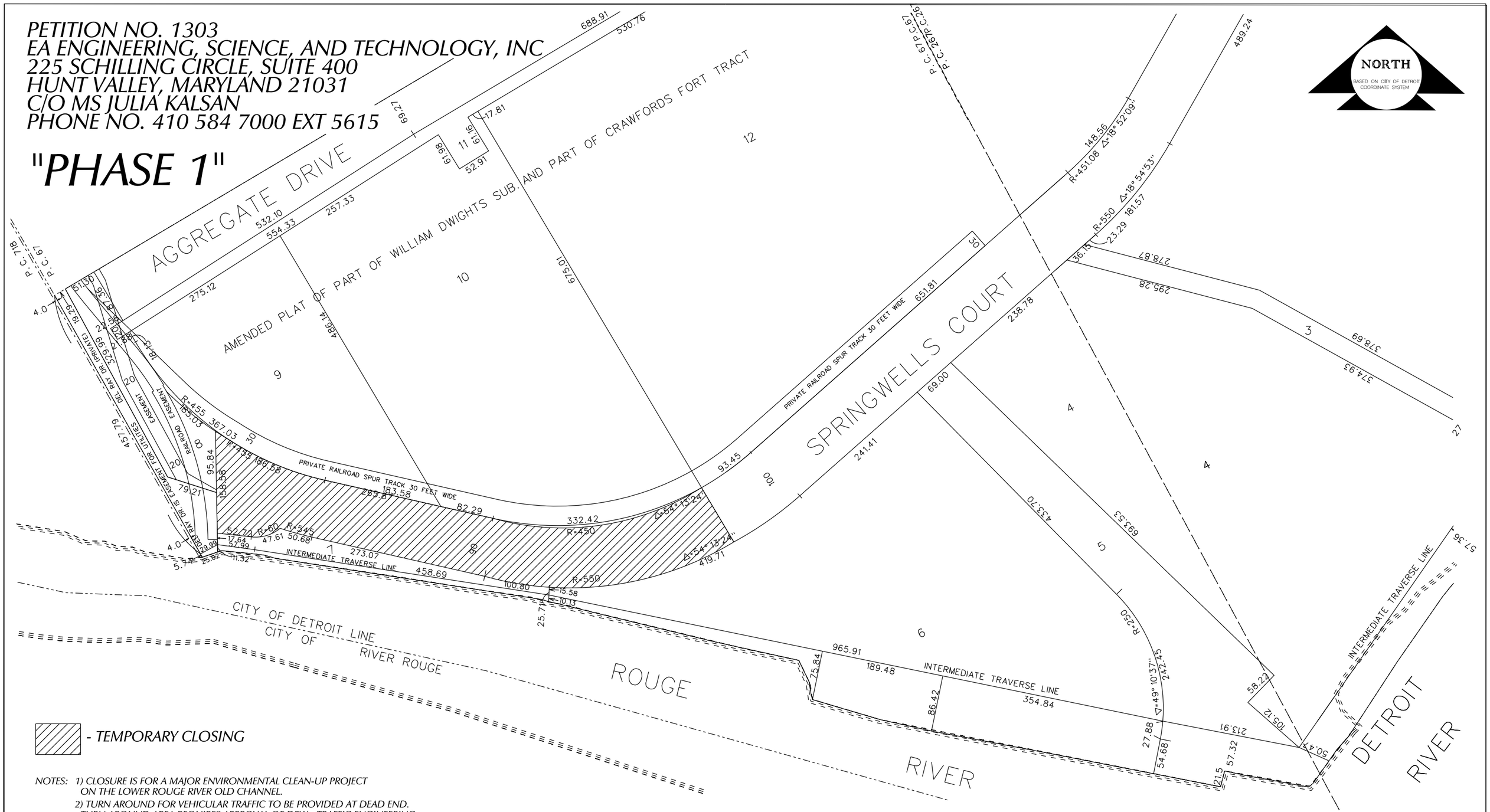
Provided that the petitioner shall provide a one (1) year warranty for the proposed sewers and or water mains; and further

Provided that upon satisfactory completion, the sewers and or water mains shall become City property and become part of the City system. And any existing sewers or water mains that were abandoned shall belong to the petitioner and will no longer be the responsibility of the City.

06/30/14

PETITION NO. 1303
EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC
225 SCHILLING CIRCLE, SUITE 400
HUNT VALLEY, MARYLAND 21031
C/O MS JULIA KALSAN
PHONE NO. 410 584 7000 EXT 5615

"PHASE 1"



- TEMPORARY CLOSING

NOTES: 1) CLOSURE IS FOR A MAJOR ENVIRONMENTAL CLEAN-UP PROJECT ON THE LOWER ROUGE RIVER OLD CHANNEL.
2) TURN AROUND FOR VEHICULAR TRAFFIC TO BE PROVIDED AT DEAD END. TURN AROUND AREA REQUIRES APPROVAL OF DPW - TRAFFIC ENGINEERING

(FOR OFFICE USE ONLY)

CARTO 1F & 10D

B					
A					
DESCRIPTION		DRWN	CHKD	APPD	DATE
REVISIONS					
DRAWN BY J. KNOLL		CHECKED			
DATE 03-01-17		APPROVED			

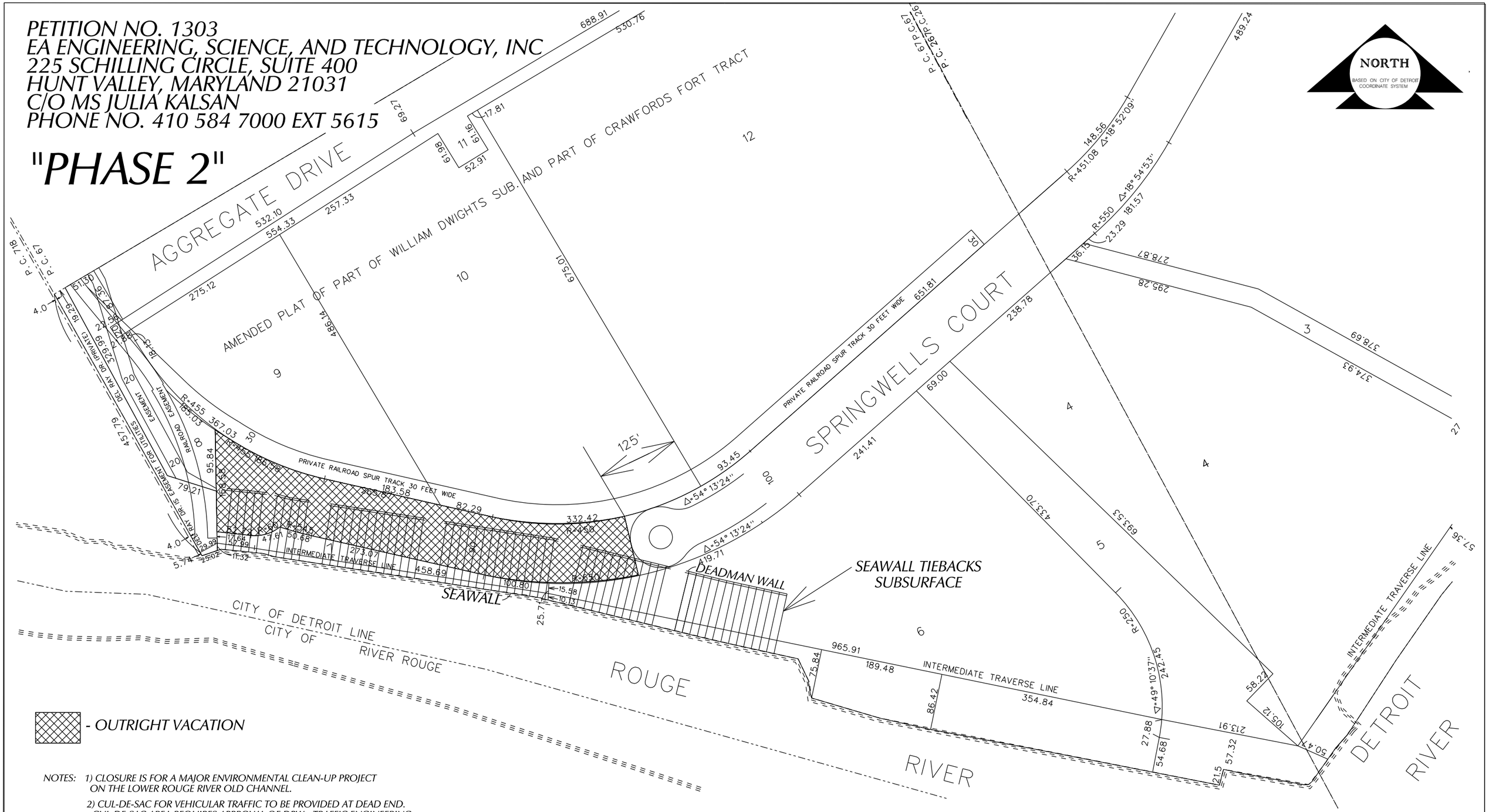
REQUEST TO TEMPORARILY CLOSE A PORTION OF SPRINGWELLS COURT VARIABLE WIDTH IN THE AREA BOUND BY WABASH R.R., AGGREGATE DR., SPRINGWELLS CT. AND ROUGE RIVER

CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
SURVEY BUREAU

JOB NO.	01-01
DRWG. NO.	X 1303

PETITION NO. 1303
EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC
225 SCHILLING CIRCLE, SUITE 400
HUNT VALLEY, MARYLAND 21031
C/O MS JULIA KALSAN
PHONE NO. 410 584 7000 EXT 5615

"PHASE 2"



NOTES: 1) CLOSURE IS FOR A MAJOR ENVIRONMENTAL CLEAN-UP PROJECT ON THE LOWER ROUGE RIVER OLD CHANNEL.

2) CUL-DE-SAC FOR VEHICULAR TRAFFIC TO BE PROVIDED AT DEAD END. CUL-DE-SAC AREA REQUIRES APPROVAL OF DPW - TRAFFIC ENGINEERING

(FOR OFFICE USE ONLY)

CARTO 1F & 10D

B					
A					
DESCRIPTION		DRWN	CHKD	APPD	DATE
REVISIONS					

DRAWN BY J. KNOLL	CHECKED
DATE 03-01-17	APPROVED

REQUEST TO OUTRIGHT VACATE A PORTION OF SPRINGWELLS COURT VARIABLE WIDTH AND REQUEST ENCROACHMENT WITH SHEETPILE TIEBACKS AND DEADMAN WALL IN THE AREA BOUND BY WABASH R.R., AGGREGATE DR., SPRINGWELLS CT. AND ROUGE RIVER

CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
SURVEY BUREAU

JOB NO.	01-01
DRWG. NO.	X 1303

ANDERSON
CROSSLEY
SOLVAY
COTTRELL
GREEN
HARRINGTON
POST
SCHROEDER
WEST JEFFERSON AVENUE
EX. 42" WATER
EX. DRI
MEDINA
BARNES
TEMP. CLOSED UNTIL 7-1-99
6-9-94 J.D.C. PGS. 158-59
VAC
PAVED
UNPAVED
36 in ST
24 in ST
42 in egg ST
12 in W
PART OF PRIVATE CLAIM 67
AMENDED PLAT OF
PART OF LOTS 13-19
"WILLIAM DWIGHT'S SUBDIVISION"
20
SCALED LOCATION OF HYDRANT ON UNMETERED 12" WATER MAIN FROM DWSD SECTION MAP WHICH IS CENTERED IN ONE OF SEVERAL PRIVATE UTILITY EASEMENTS ON THIS SITE.
EX. PRIVATE EASEMENTS FOR PRIVATE WATER AND SEWER - DETAILS UNKNOWN
NEW 20' DWSD EASEMENT FOR 12" LOOPED WATER MAIN CONNECTION TO 42" WATER MAIN IN JEFFERSON.
VERY APPROXIMATE LOCATION OF OLD SOLVAY SEWER CONNECTION TO THE SCHROEDER OUTFALL
EXISTING SCHROEDER REGULATOR CHAMBER
DETROIT EDISON
E. 13465.000
N. 293.000
N. 292.500
35+00
30+00
PARCEL 1
AMENDED PL
OF LOT
"CRAWFORD'S
102
APPROX. LOCATION OF BELLMOUTH AND SPLIT TO TWO 5'3" SEWERS FOR 6'-10" SCHROEDER OUTFALL SEWER
STUB FOR FUTURE PARCEL 1 STORM CONNECTION - 9.6 cfs MAXIMUM
NEW 30' SEWER EASEMENT
30' EGRESS EASEMENT
MAX. STORM FLOW, FROM A 10 YEAR STORM EVENT, TO THE SCHROEDER OUTFALL IS 63 cfs
NEW 20' DWSD EASEMENT FOR WATER MAIN
APPROXIMATE LOCATION OF OLD SOLVAY 36 INCH SEWER OUTFALL
APPROXIMATE LOCATION OF OLD SOLVAY 60 INCH EGG SEWER OUTFALL
PARCEL 8
PARCEL 9
EX. 30' EASEMENT FOR RR SPUR TRACK
PARCEL 10
TEMP. DETENTION POND
STUB 4 TEMP. BASIN OUTLET FOR FUTURE PARCEL 9 STORM CONNECTION - 2.0 cfs MAXIMUM
PARCEL 7
PARCEL 12
STUB 4 TEMP. BASIN OUTLET FOR FUTURE PARCEL 12 STORM CONNECTION - 16.4 cfs MAXIMUM
TEMP. DETENTION POND
STUB FOR FUTURE PARCEL 2 STORM CONNECTION - 17.3 cfs MAXIMUM
PARCEL 2
CITY OF DETROIT
CITY OF RIVER ROUGE
D.C.R.R. BRIDGES
TEMP. DETENTION POND
STUB 4 TEMP. BASIN OUTLET FOR FUTURE PARCEL 10 STORM CONNECTION - 5.12 cfs MAXIMUM
10+00
15+00
20+00
25+00
N. 291.000
E. 13464.000
E. 13465.000
STUB FOR FUTURE PARCEL 6 STORM CONNECTION - 6.0 cfs MAXIMUM
STUB FOR FUTURE PARCEL 5 STORM CONNECTION - 3.0 cfs MAXIMUM
STUB FOR FUTURE PARCEL 4 STORM CONNECTION - 7.5 cfs MAXIMUM
PARCEL 6
PARCEL 5
PARCEL 4
PARCEL 3
FUTURE SPUR TRACK (BY OTHERS)
FUTURE SPUR TRACKS (BY OTHERS)
SPUR TRACKS (BY OTHERS) TO SERVICE LAFARGE PARCEL
AB'D RAW WATER INTAKE LINES
OUTFALL STRUCTURE FOR 3 SCHROEDER OUTFALL PIPES
DOCK REPAIR SHOP
PLANT OFFICE
COMFORT STATION
HOUSE
6807Ø

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Kuhner	DATE 3-18-04
HEAD ENGR-DES. Glenn Bush	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO.	L&S*
MDEQ	D JOB*
MDPH	DRWG/REF* SEWER
R&U*	WATER

3 WORKING DAYS
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Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
		Pink	SURVEYING

IF YOU ARE GOING TO DIG FROM CHANGED SIGN - CALL MISS DIG

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 100'
0 50 100 200 300
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
369 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2186 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: SITE PLAN
SHEET NO.: C 1.20

2332-1

CROSSLET

YELLOW FREIGHT

EX. GATE BOXES INSTALLED IN 1976

REMOVE, CUT/CAP EX. PRIVATE HYD. & RESTORE PVT.

EX. 10" METERED PRIVATE WATER MAIN (CIRCA 1896)

EX. 12" UNMETERED WATER MAIN (CIRCA 1896)

APPROX. LOCATION OF OLD SOLVAY SEWER OUTFALL EXACT LOCATION AND ELEVATION ARE UNKNOWN.

PRIVATE WATER LINE - DESTINATION UNKNOWN

SEE DETAIL 'A'

NEW DWSD 20' EASEMENT FOR WATER MAIN

NEW 12" WATER MAIN IN 20' EASEMENT, REMOVE & REPLACE PAVEMENT AS REQ.

SCALED LOCATION OF HYDRANT ON UNMETERED 12" WATER MAIN FROM DWSD SECTION MAP - COULD NOT FIND IN FIELD

N. 291,148.90
E. 13,463,645.32

45° BEND 410+64.49
N. 291,129.45
E. 13,463,630.17

12" G.V. & W. 410+92.03

T&4V - SEE C4.40 FOR DETAILS 400+03±
N. 292,043.6±
E. 13,463,111.5±

2-NEW FIRE HYDRANTS DIRECTLY OPPOSITE THE EXISTING HYDRANTS ON YELLOW FREIGHT. SEE DETAILS B & C (typ)

DETECTOR CHECK SEE DETAIL 'C'

APPROX. LOCATION OF OLD SOLVAY SEWER OUTFALL - EXACT LOCATION AND ELEVATION ARE UNKNOWN.

APPROX. LOCATION OF OLD SOLVAY SEWER OUTFALL - EXACT LOCATION AND ELEVATION ARE UNKNOWN.

ANDERSON

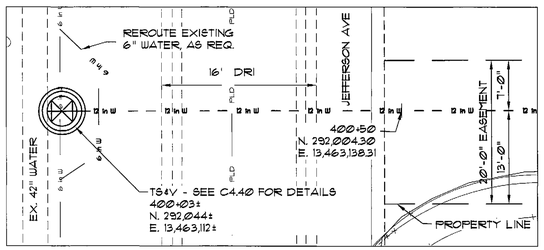
WEST JEFFERSON AVE. (66 FT. WIDE)

FUTURE GRAVEL ROAD

AGGREGATE DRIVE (PUBLIC) VARIABLE WIDTH

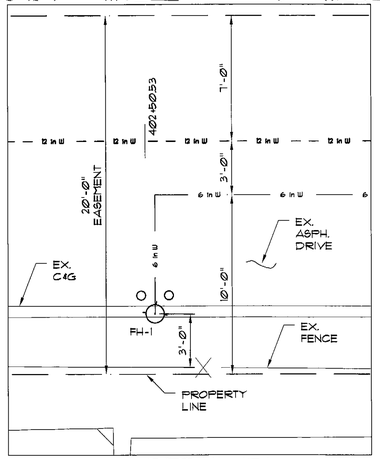
NEW 20' DWSD EASEMENT FOR WATER MAIN - SEE SHEET C2.11

SEE SHEET C2.11 FOR LOCATIONS



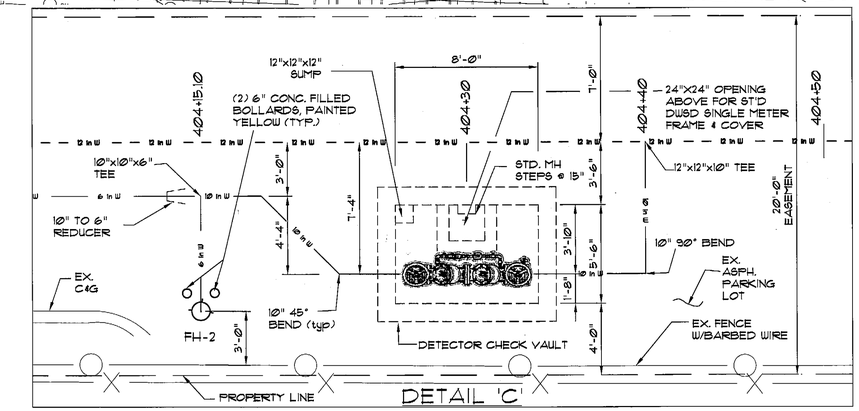
DETAIL 'A'

1"=10'-0"



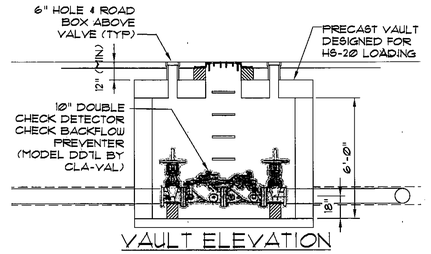
DETAIL 'B'

1/4"=1'-0"



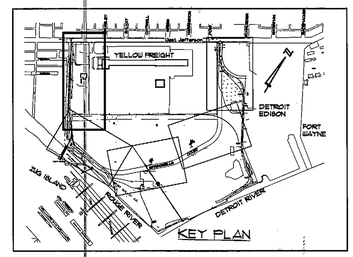
DETAIL 'C'

1/4"=1'-0"



VAULT ELEVATION

1/4"=1'-0"



68071

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Hudson	DATE 3-18-04
HEAD ENGR-DES. Grant Ault	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO.	L8#
MDEQ	D JOB#
MDPH	
R/W#	DRWG/REF# SEWER
	WATER

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ALTERNATE NUMBER (800) MISS-DIG
COLOR CODES FOR UTILITY LOCATING:

Yellow	OIL & GAS	Blue	WATER
Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
		Pink	SURVEYING

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES - CALL MISS DIG

ISSUE	BY	CHK'D	APPR'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 40'
0 10 20 40 80 120
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2196 UULLTY.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: UTILITY PLAN - YELLOW FREIGHT PROP.
SHEET NO.: C2.10

2332-2

PARCEL 8

PARCEL 9

PARCEL 10

PARCEL 7

11.25° BEND 413+74.97
N. 290,930.60
E. 13,463,493.02

11.25° BEND 413+87.18
N. 290,920.39
E. 13,463,500.14

NEW 20' DWSD EASEMENT FOR WATER MAIN

APPROXIMATE LOCATION OF OLD SOLVAY 36" OUTFALL SEWER

45° BEND 415+51.64
N. 290,808.14
E. 13,463,619.94

48 LF CASING FOR WATER MAIN UNDER TRACK SPUR

45° BEND 416+05.44
N. 290,754.73
E. 13,463,626.50

RAIL SPUR (BY OTHERS)

PT 445'± R. CURVE
N. 290,687.73
E. 13,463,780.52
417+55.44

TEMPORARY STORM WATER DETENTION BASIN. EXCAVATE SIDESLOPES AT 1:6 MAXIMUM. INSTALL TEMPORARY OUTLET STRUCTURE TO DETAIL ON SHEET C1.20. GRADE PARCEL TOWARDS BASIN FOR POSITIVE DRAINAGE - TYPICAL.

8" STUB 112LF @ 1.0% FOR FUTURE PARCEL 9 SANITARY CONNECTION
5+50 84.5 L. - I.E. 100.50

12" STUB @0.35%, 4 BASIN OUTLET FOR FUTURE PARCEL 9 STORM CONNECTION
5+80.5 99.0' L.
I.E. 101.20

ENCASE STORM & SAN. PIPES UNDER RR SPUR (TYP)

TEMPORARY STORM WATER DETENTION BASIN. EXCAVATE SIDESLOPES AT 1:6 MAXIMUM. INSTALL TEMPORARY OUTLET STRUCTURE TO DETAIL ON SHEET C1.20. GRADE PARCEL TOWARDS BASIN FOR POSITIVE DRAINAGE - TYPICAL.

76 LF STEEL CASING FOR WATER MAIN
8+09.00 40.03' L.
8+91.33 38.83' L.

15" STUB @ 0.62% & BASIN OUTLET FOR FUTURE PARCEL 10 STORM CONNECTION
10+24.8 104.2' L.
I.E. 100.63

8" STUB 106LF @ 1.0% FOR FUTURE PARCEL 10 SANITARY
11+00 81.0' L.
I.E. 99.96

11.25° BEND 421+60.17
N. 290,614.33
E. 13,464,158.45

APPROX. LOCATION OF OLD SOLVAY OUTFALL SEWER

FUTURE RAIL SPUR (BY OTHERS)

200' PRIVATE EASEMENT FOR PUBLIC UTILITIES

OVERHEAD PIPE BRIDGE

ROUGE RIVER

CITY OF DETROIT

CITY OF RIVER ROUGE

N. 290500

KEY PLAN

3 WORKING DAYS
BEFORE YOU DIG CALL MISS DIG.
1-800-482-7171
ALTERNATE NUMBER (810) MISS-DIG
COLOR CODES FOR UTILITY LOCATING
Yellow — Oil, & Gas
Orange — Phone & CATV
Red — Electric
Blue — Water
Green — Storm Drain
Brown — Sewer
Pink — Surveying
IF YOU ARE GOING TO MAKE ROAD CHANGES MORE ... CALL MISS DIG

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Hudson	DATE 3-18-04
HEAD ENGR.-DES. Edward Abdo	3-20-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	
MDEQ	L.S.*
MDPH	D JOB*
R/W*	DRWG/REF*
	SEWER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 30'
0 10 20 30 60 90
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2356 WWW.TYJ.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: UTILITY PLAN 3+50 to 11+00
SHEET NO.: C2.11

68072

PARCEL 12

PARCEL 5

PARCEL 6

PARCEL 4

PARCEL 3

APPROX. LOCATION OF OLD SOLVAY OUTFALL PIPE

PT 480'± R CURVE
N. 290,731.60
E. 13,464,441.61
424+71.77

12" G.V. 4W.
424+74.14

E. 13,461,500

N. 291,000

N. 290,500

TEMPORARY DETENTION POND FOR PARCEL 12

EL. 1043

FC 455'± R
N. 291,163.03
E. 13,464,930.20
431+23.54

EL. 1043

CAUTION
OVERHEAD WIRES

200 LF STEEL CASING FOR WATER MAIN
15+03 52.0' L.
11+03 50.0' L.

CONC. ENCASE HDPE PIPE UNDER DRIVE (TYP.)

CAUTION
OVERHEAD WIRES

8" STUB 40LF @ 1.0% FOR FUTURE PARCEL 6 SANITARY CONNECTION
13+92.8 61.6' R.
I.E. 98.60

15" STUB @ 0.90% FOR FUTURE PARCEL 6 STORM CONNECTION
14+77.92 60.00' R.
I.E. 100.80

4" WATER SERVICE
15+01 45' R.

12" STUB, @0.75% FOR FUTURE PARCEL 5 STORM CONNECTION
15+15.25 77.72' R.
I.E. 99.50

8" STUB 56LF @ 1.0% FOR FUTURE PARCEL 5 SANITARY CONNECTION
15+31.6 77.8' R.
I.E. 98.0

145 LF 6" STEEL CASING FOR FUTURE GAS
17+17.63 35.00' R. I.E. 101.5
18+62.63 35.00' R. I.E. 101.5

8" STUB 40LF @ 1.0% FOR FUTURE PARCEL 4 SANITARY CONNECTION
16+71.93 62.5' R.
I.E. 98.0

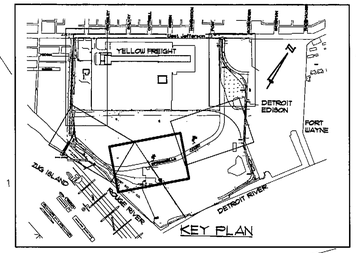
15" STUB @ 1.35% FOR FUTURE PARCEL 4 STORM CONNECTION
17+81.8 94.7' L.
I.E. 100.00

FUTURE GAS BY DTE

FUTURE RAIL SPUR (BY OTHERS)

RAIL SPUR FOR LAFARGE PARCEL (BY OTHERS)

KEY PLAN



3 WORKING DAYS
BEFORE YOU DIG CALL MISS DIG.
1-800-482-7171
For the location of public utility lines.
ALTERNATE NUMBER (810) MISS-DIG
COLOR CODES FOR UTILITY LOCATING:

Yellow	OIL & GAS	Blue	WATER
Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
		Pink	SURVEYING

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES ... CALL MISS DIG

DWSD SYSTEM ACCEPTANCE

DESIGN REVIEWED: DLS M Anderson	DATE 3-18-04
HEAD ENGR-DES. Richard Roth	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO.	L.S.#
MDEQ	D JOB#
MDPH	
R/U#	DRUG/REP# BEUER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 30'
0 10 20 30 60 90
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

Iafrate
ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD · WARREN, MICHIGAN 48091
(586) 756-1070

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
960 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-0612 FAX (313) 963-2586 UTILITY.UT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: UTILITY PLAN 11+00 to 20+50
SHEET NO.: C2.12

68073

2332-4

PARCEL

CAUTION OVERHEAD WIRES

CAUTION OVERHEAD WIRES

CAUTION OVERHEAD WIRES

TEMPORARY STORM WATER DETENTION BASIN. EXCAVATE SIDESLOPES AT 1:6 MAXIMUM. INSTALL TEMPORARY OUTLET STRUCTURE TO DETAIL ON SHEET C1.20. GRADE PARCEL TOWARDS BASIN FOR POSITIVE DRAINAGE - TYPICAL.

EL. 105.3

BASIN LENGTH = 340'

24" STUB @ 0.54% & BASIN OUTLET FOR FUTURE PARCEL 12 STORM 21+04.2 74.1' L. I.E. 99.28

8" STUB 70LF @ 1.0% FOR FUTURE PARCEL 12 SANITARY 45.00' L. 24+13.6 I.E. 94.36

12"x12"x6" TEE 437+00 50.00 (6" WATER)

6" GV 4 W 0' R 50+14.00 (6") 43.00 45° BEND

11.25° BEND N. 291,712.11 E. 13,465,270.89 437+71.95

12" GV 4W. 438+06.31

FH-9

FH-10

FUTURE GAS BY DTE (NIC)

NEW OVERHEAD FOR FLD AND DTE - SEE DWG C1.30 & ELECT. DWGS.

6" PLUG 24+82.11 38' R 50+78 (6" WATER)

24" STUB @ 0.60% FOR FUTURE STORM FROM PARCEL 2 25+00.00 45.00' R I.E. 98.00

8" SAN. FOR PARCEL 2 24+50 45' R

APPROX. LOCATION OF ABANDONED GAS

STUB FOR FUTURE AGGREGATE ROAD DRAINAGE 29+44.14 53.01' L. I.E. 94.34

FUTURE AGGREGATE ROAD

22.5° BEND N. 291,889.12 E. 13,465,285.14 439+89.33

12"x12"x10" TEE N. 291,858.30 E. 13,465,287.89 439+42.03

60.00 (10" WATER)

10" GV 4W 27+23.35 0' R 60+27.13 (10") I.E. 98.5

10" 11.25° BEND 27+22.61 4.71' R 60+31.89 (10" WATER) I.E. 98.5

10" 22.5° BEND 27+16.77 22.76' R 60+50.97 (10" WATER) I.E. 98.5

10" PLUG FOR FUTURE WATER FOR PARCEL 2 27+06.02 37.01' R 60+63.5 (10" WATER) I.E. 98.5

WATER SERVICES AND VALVES TO PARCEL 2 BY OTHERS

8" STUB 48LF @ 1.0% FOR FUTURE PARCEL 1 SANITARY 28+17.9 50.00' R I.E. 101.00

15" STUB @ 0.76% FOR FUTURE PARCEL 1 STORM 27+56.29 121.83' R I.E. 98.02

8" STUB 87 LF @ 1.0% FOR SANITARY FROM PARCEL 2 26+64.56 85.17' R I.E. 97.00

FLAPGATE AND ACCESS CHAMBER SEE C4.10

NEW SCHROEDER OUTFALL JUNCTION CHAMBER - SEE C4.10

EX. 3 BARRELS FOR SCHROEDER OUTFALL

PIPELINE EASEMENT

NEW DWSD EASEMENT FOR SEWER

INGRESS EGRESS EASEMENT

FUTURE AGGREGATE ROAD

KEY PLAN

YELLOW FREIGHT

DETROIT EDISON

FORT WAYNE

23rd ISLAND

ROUGE RIVER

DETROIT RIVER

PARCEL 2

68074

DWSD SYSTEM ACCEPTANCE

DESIGN REVIEWED: DLS N. Nelson	DATE 3-18-04
HEAD ENGR-DES. Richard Bush	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO.	L&S#
MDEQ	D JOB#
MDPH	
R/U#	DRWG/REF# SEWER
	WATER

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG.
1-800-482-7171
For the location of public utility lines.
ALTERNATE NUMBER (810) MISS-DIG
COLOR CODES FOR UTILITY LOCATING

Yellow	OIL & GAS	Blue	WATER
Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
		Pink	SURVEYING

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES ... CALL MISS DIG

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 30'
0 10 20 30 60 90
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

Iafrate
ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2613 FAX (313) 963-2186 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: UTILITY PLAN 20+60 to 30+00
SHEET NO.: C2.13

02332-5

SCHROEDER REGULATOR CHAMBER

SCHROEDER OUTFALL SEWERS

STORM MH RIM 109.05

STORM MH RIM 109.57

STORM MH RIM 109.76 LADDER CHAMBER BOTTOM OF CHAMBER

STORM MH (PER PLAN) UNABLE TO LOCATE IN FIELD

STORM MH RIM 108.64 LARGE N.S. PIPE 1" PIPE 99.64 N.S. 92.94

STORM MH RIM 109.09

6'-Ø" ST. 6'-0" CYL 3 RING SEWER

6'-10" ST. 6'-10" CYL 3 RING SEWER

OLD 6' WATERMAN SEWER

OLD 6'-10" SCHROEDER SEWER

6'-0" CYL 3 RING SEWER

6'-10" CYL 3 RING SEWER

STORM MH RIM 107.35 LARGE N.S. PIPE N 94.63 S 94.33

STORM MH (PROP) CHANGE TO 72"

RECEIVE CB RIM 107.55 LARGE N.S. PIPE 18" IN PROP

6'-0" CYL 3 RING SEWER

6'-10" CYL 3 RING SEWER

16'-0" CYL SEWER

N. 293000

E. 13465000

42" WATER

EX. PLD/DTE POLE

T61V SEE C4.40 FOR DETAILS

451+56±

24.0

APPROX. LOCATION OF ABANDONED HP GAS (TYP)

GAS MH

GAS VENT 110.95

GAS MH

GAS VENT 110.59

P-1 P-2 P-3 P-4 P-5 P-6 P-7 P-8 P-9 P-10 P-11 P-12 P-13

D8-41 D8-42 D8-43 D8-44 D8-45 D8-46 D8-47 D8-48

FH-14 FH-13 FH-12

37+69.84 1600' L.

37+80.52 2400' L.

TOP 2 EX. 10" PROPANE LINES AT EL. 104.3± MAINTAIN 2' MIN. CLEAR TO PIPELINES (TYP.)

PIPELINE EASEMENT

NEW GAS BY DTE

CAUTION OVERHEAD LINES

GRAVEL

PARCEL 1

APPROX. LOCATION OF OLD SOLVAY CONNECTION TO THE SCHROEDER OUTFALL

68675

KEY PLAN

YELLOW FREIGHT

DETROIT EDISON

FORT WAYNE

23 MILE

ROUGE RIVER

DETROIT RIVER

3 WORKING DAYS
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ALTERNATE NUMBER (810) MISS-DIG
COLOR CODES FOR UTILITY LOCATING

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Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
		Pink	SURVEYING

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES — CALL MISS DIG

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Hudson	DATE 3-18-04
HEAD ENGR-DES. Richard Mark	3-24-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO. MDEQ MDPH	L&S* D JOB*
R/W*	DRWG/REF* SEWER WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 30'
0 10 20 30 60 90
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

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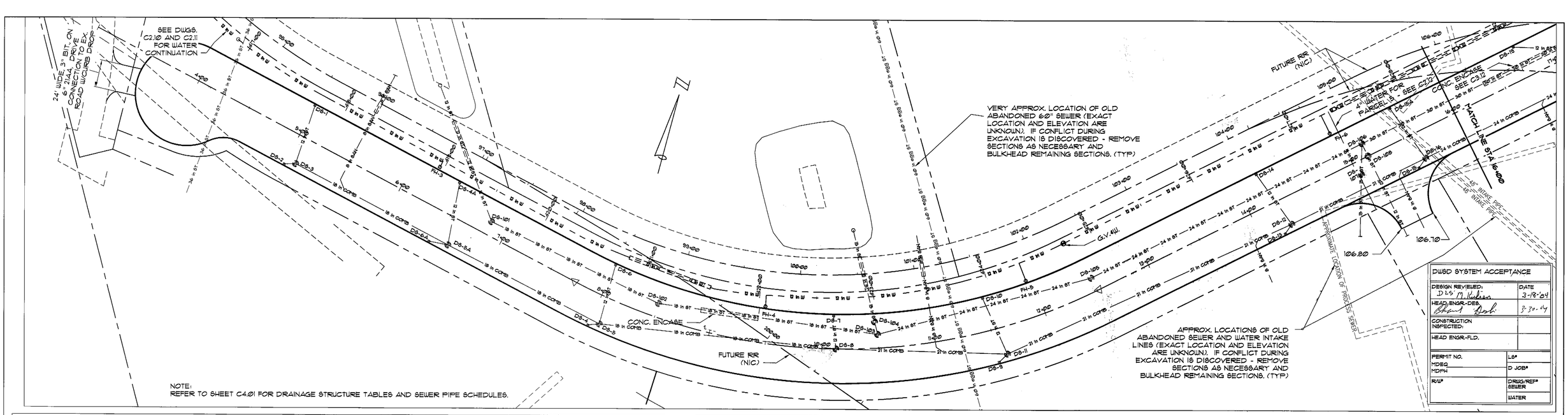
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2164 WWW.TYJT.COM

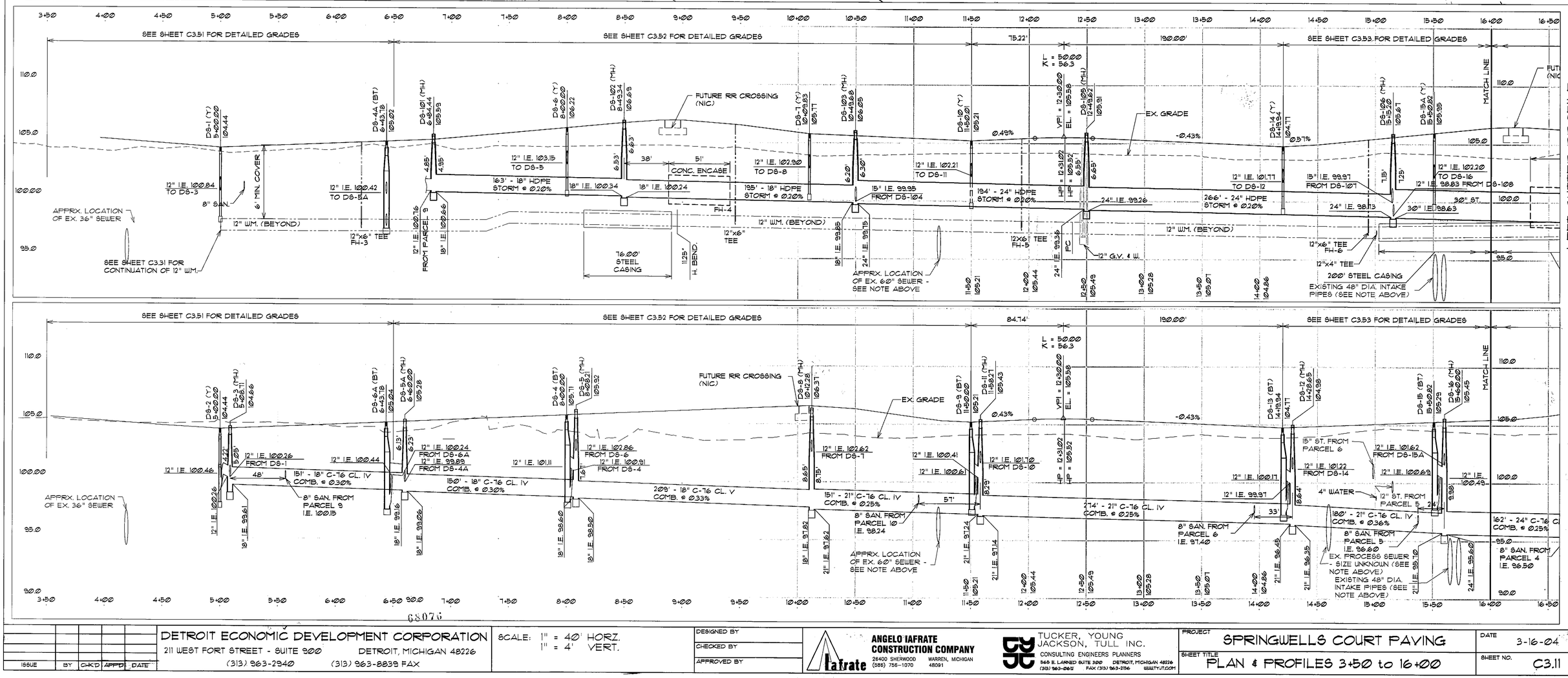
PROJECT: SPRINGWELLS COURT PAVING
SHEET TITLE: UTILITY PLAN 30+00 to Jefferson
DATE: 3-16-04
SHEET NO.: C2.14

2332-6



NOTE:
REFER TO SHEET C4.01 FOR DRAINAGE STRUCTURE TABLES AND SEWER PIPE SCHEDULES.

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: D.P.S. M. Nelson	DATE 3-18-04
HEAD, ENGR.-DEB Glenn Dash	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	L&S#
MDEQ	D JOB#
MDPH	
R/W#	DRWG/REP# SEWER
	WATER



ISSUE	BY	CK'D	APP'D	DATE	

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 40' HORZ.
1" = 4' VERT.

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APPROVED BY

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CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2852 FAX (313) 963-2156 WWW.TYJT.COM

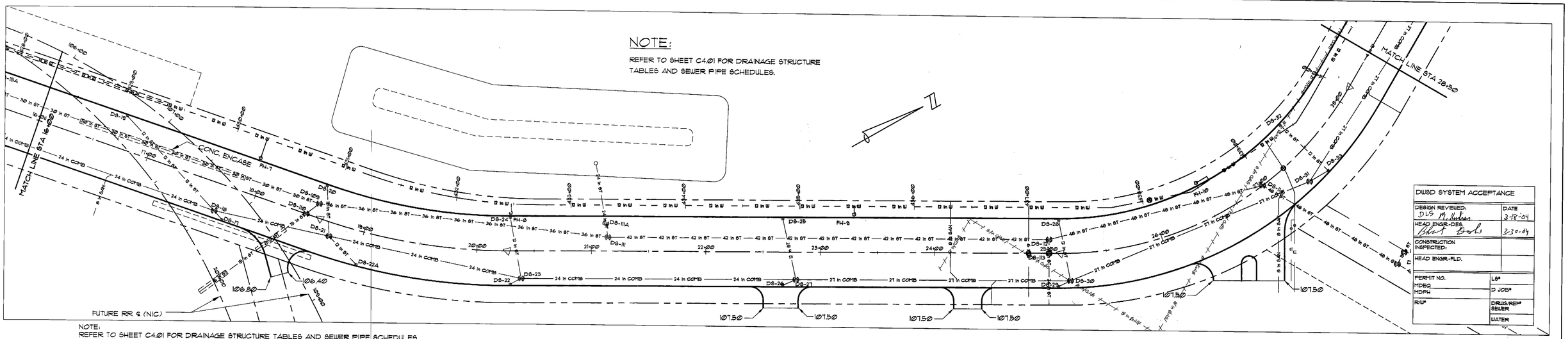
PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: PLAN & PROFILES 3+50 to 16+00
SHEET NO.: C3.11

68076

2332-7

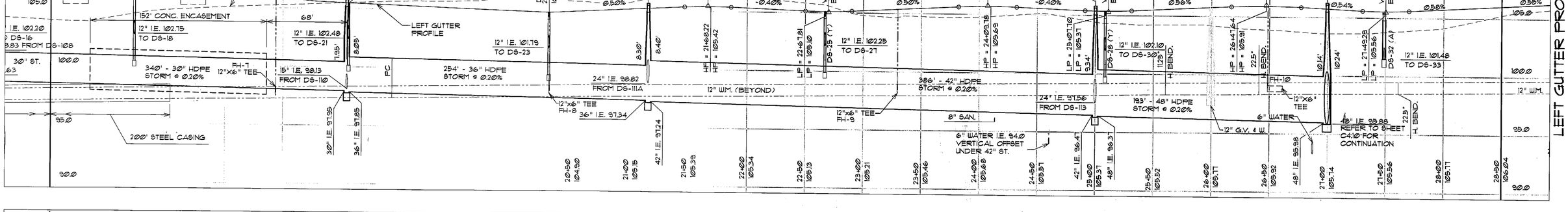
NOTE:

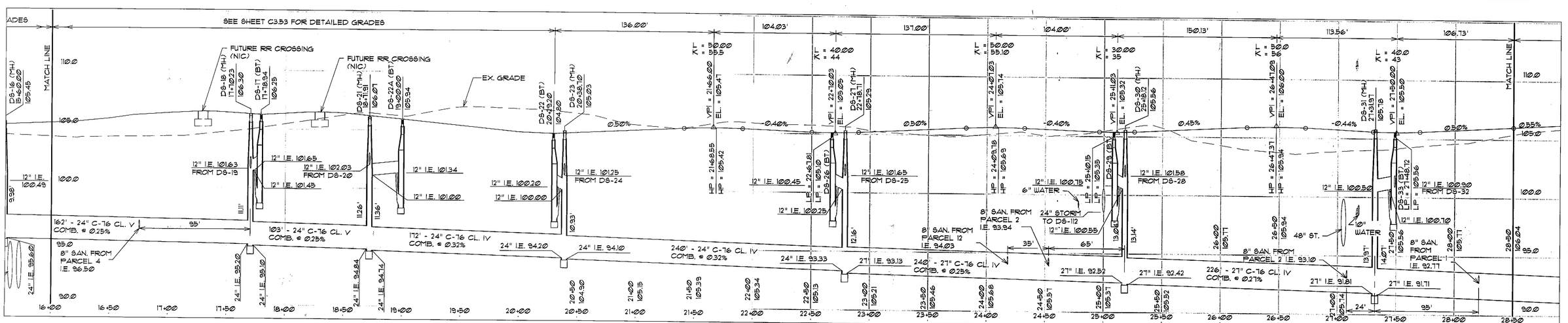
REFER TO SHEET C4.01 FOR DRAINAGE STRUCTURE TABLES AND SEWER PIPE SCHEDULES.



NOTE:
REFER TO SHEET C4.01 FOR DRAINAGE STRUCTURE TABLES AND SEWER PIPE SCHEDULES.

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Anderson	DATE 3-18-04
HEAD ENGR-DES. Gopi Patel	3-18-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	L6#
MDEQ	D JOB#
MDPH	
R/U#	DRUGS/REF# SEWER
	WATER





RIGHT GUTTER PROFILE

LEFT GUTTER PROFILE

65077

ISSUE	BY	CHK'D	APPD.	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 40' HORZ.
1" = 4' VERT.

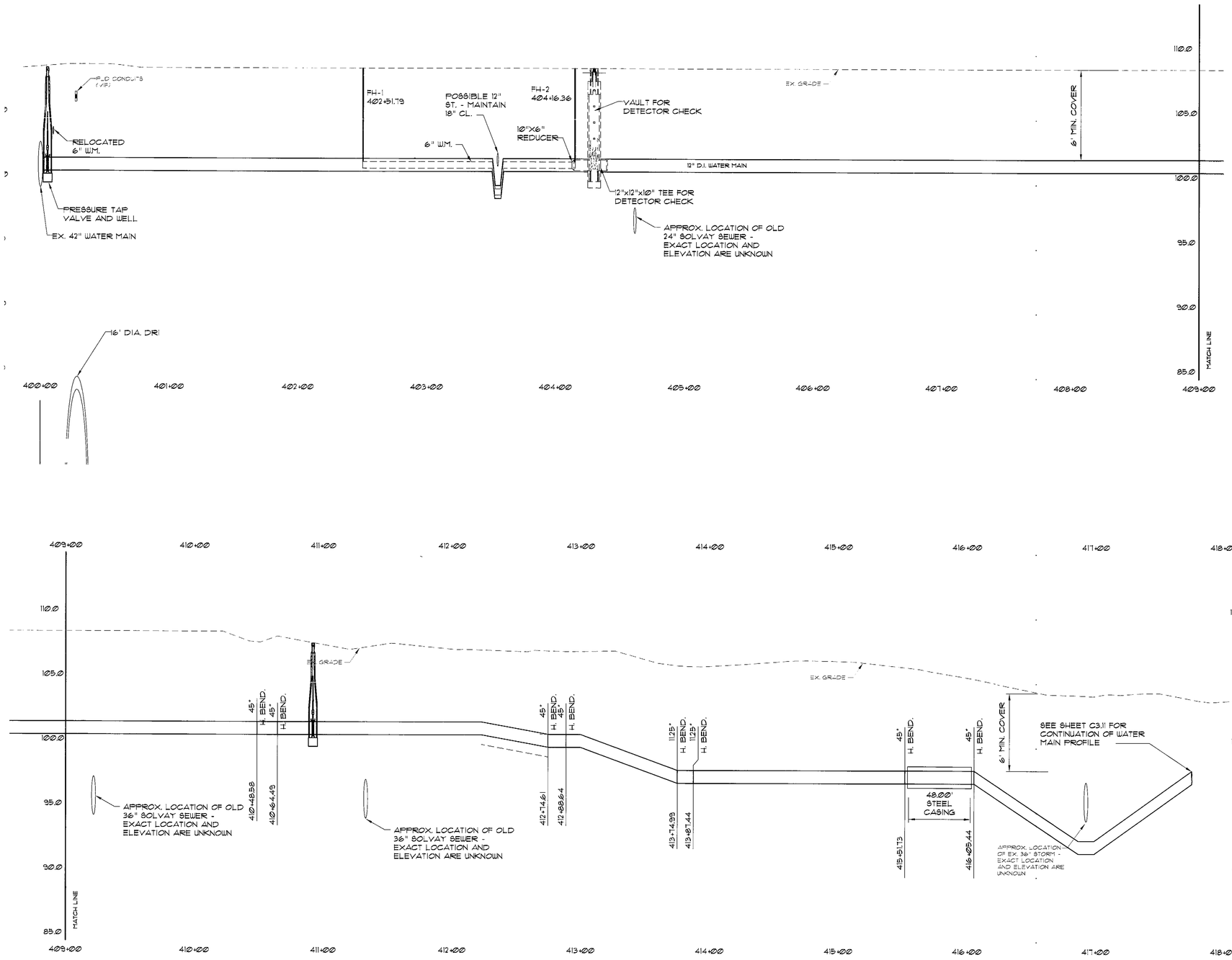
DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2622 FAX (313) 963-2564 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: PLAN & PROFILES 16+00 to 28+50
SHEET NO.: C3.12

2332-8



DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Hudalla	DATE 3-18-04
HEAD ENGR-DES.	3-22-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO.	L6#
MDEQ MDPH	D JOB#
R/W#	DRWG/REF# SEWER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 40' HORZ.
1" = 4' VERT.

DESIGNED BY
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APPROVED BY

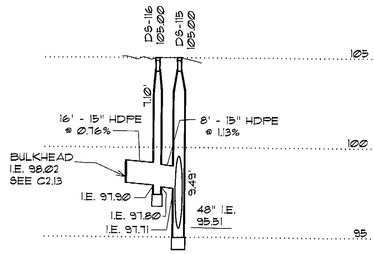
ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 755-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2186 WWW.TYJT.COM

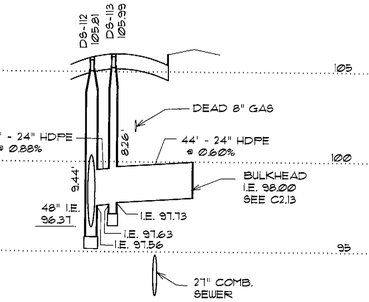
PROJECT: SPRINGWELLS COURT PAVING
SHEET TITLE: WATER MAIN PROFILE SHEET 1

DATE: 3-16-04
SHEET NO.: C3.31

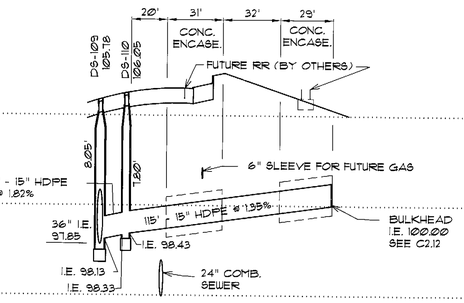
2332-10



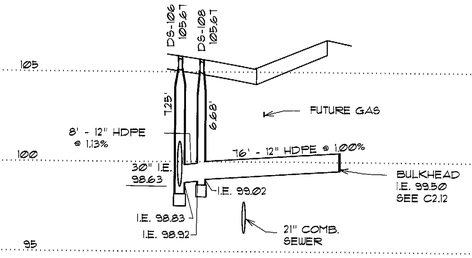
PARCEL 1 STORM CONNECTION



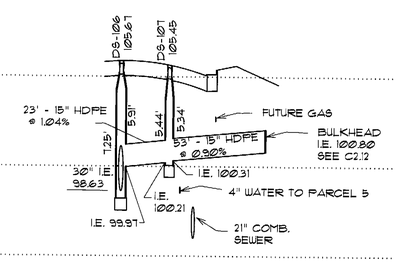
PARCEL 2 STORM CONNECTION



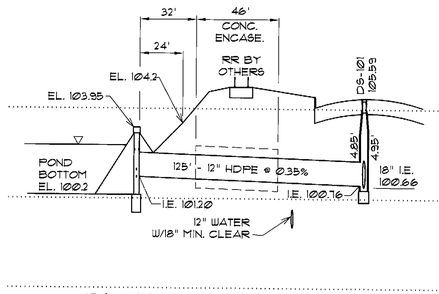
PARCEL 4 STORM CONNECTION



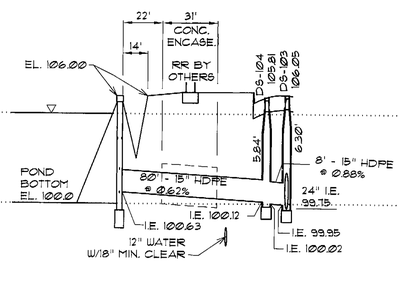
PARCEL 5 STORM CONNECTION



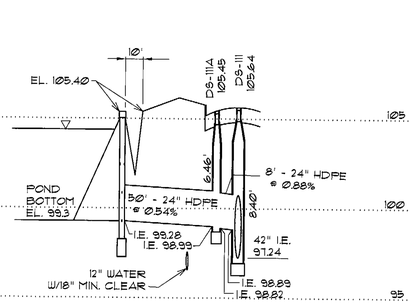
PARCEL 6 STORM CONNECTION



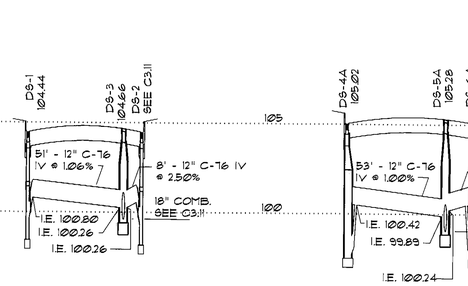
PARCEL 9 STORM CONNECTION



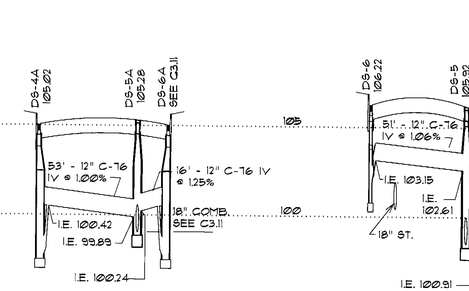
PARCEL 10 STORM CONNECTION



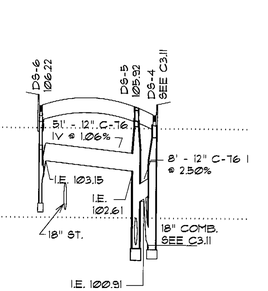
PARCEL 12 STORM CONNECTION



DS-1, 2, & 3



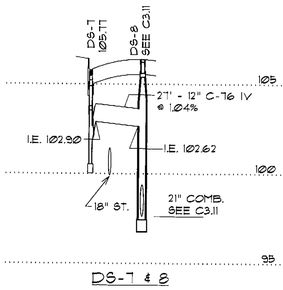
DS-4A, 5A, & 6A



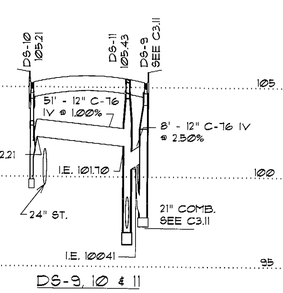
DS-4, 5, & 6

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M Kuhlow	DATE 3-18-04
HEAD ENGR.-DES.	DATE 8-20-14
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	

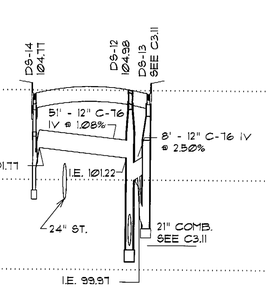
PERMIT NO.	L8*
MDEQ	D JOB*
MDPH	
R/W*	DRUG/REP* SEWER
	WATER



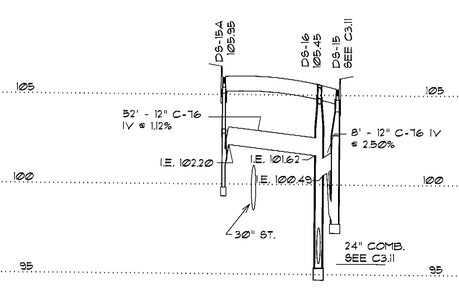
DS-7 & 8



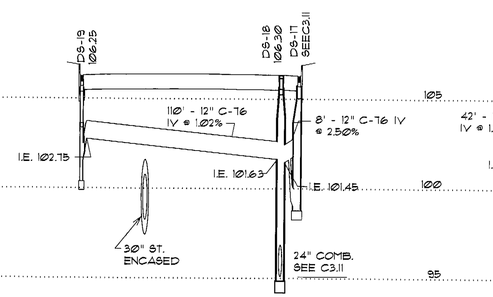
DS-9, 10 & 11



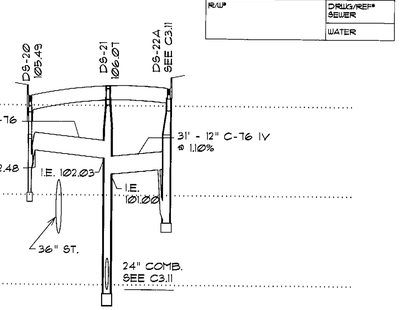
DS-12, 13 & 14



DS-15, 15A, & 16



DS-17, 18 & 19



DS-20, 21 & 22A

6968

1686JE	BY	CHKD	APPD	DATE		

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
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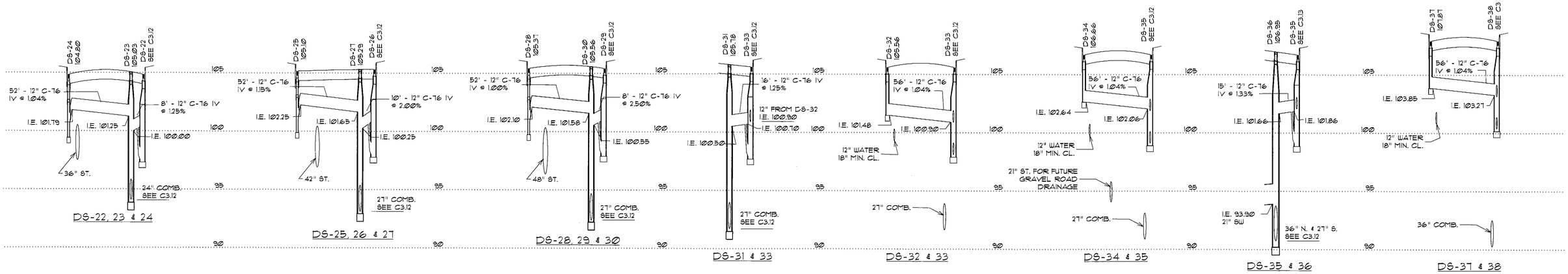
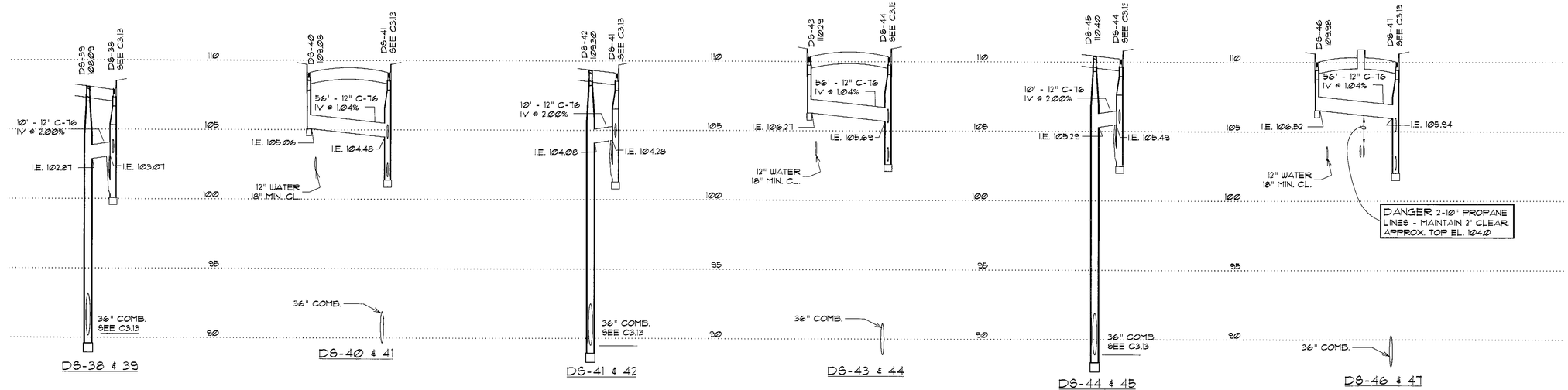
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2156 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: MISC. PROFILES
SHEET NO.: C3.41

2332-11





DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: D.L.S. M. Hudson	DATE 3-18-04
HEAD ENGR.-DES.	3-20-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	LS#
MDEQ MDPH	D JOB#
R/U#	DRUG/REF# SEWER
	WATER

C5081

ISSUE	BY	CHKD	APPD	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
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SCALE: 1" = 40' HORIZONTAL
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PROJECT: SPRINGWELLS COURT PAVING
SHEET TITLE: MISC. PROFILES
DATE: 3-16-04
SHEET NO.: C3.42

2332-12

TABLE 1 - Combined Sewer & Drainage Structures

STRUCTURE NUMBER	LOCATION STATION	LOCATION OFFSET	RIM ELEV.	SIZE	TYPE	SEWER SIZE, DIRECTION & INVERT	FRAME & COVER	REMARKS
DS-1	5+00	28.92' LT.	104.44	18" x 12"	SPECIAL "Y"	12" S. I.E. 100.80	FLAT GRATE	SPECIAL "Y" INLET TO DS-3
DS-2	5+00	28.92' RT.	104.44	18" x 12"	SPECIAL "Y"	12" NE. I.E. 100.46	FLAT GRATE	SPECIAL "Y" INLET TO DS-3
DS-3	5+08.71	24.0' RT.	104.66	48"	STANDARD DWSD MANHOLE	12" N. I.E. 100.26 12" SW. I.E. 100.26 18" SE. I.E. 99.81	BOLT-DOWN MANHOLE COVER	FROM INLET DS-1 FROM INLET DS-2
DS-4A	6+43.78	28.92' LT.	105.02	48"	BT	12" SE. I.E. 100.42	FLAT GRATE	TO DS-5A
DS-6A	6+60	24.0' RT.	105.28	48"	STANDARD DWSD MANHOLE	18" NW. I.E. 99.18 12" NW. I.E. 99.88 12" SW. I.E. 100.24 18" SE. I.E. 99.06	BOLT-DOWN MANHOLE COVER	FROM INLET DS-4A FROM INLET DS-6A
DS-6A	6+43.78	28.92' LT.	105.04	48"	BT	12" NE. I.E. 100.44	FLAT GRATE	TO DS-5A
DS-4	8+00	28.92' RT.	105.71	48"	BT	12" NE. I.E. 101.11	FLAT GRATE	TO DS-5
DS-5	8+08.21	24.0' RT.	105.92	48"	FLAT TOP STANDARD MANHOLE PER MDOT	18" NW. I.E. 98.60 12" SW. I.E. 100.91 12" N. I.E. 102.61 18" NE. I.E. 98.50	BOLT-DOWN MANHOLE COVER	FROM INLET DS-4 FROM INLET DS-6
DS-6	8+00	28.92' LT.	106.22	18" x 12"	SPECIAL "Y"	12" S. I.E. 103.15	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-7	10+09.83	28.92' LT.	105.77	18" x 12"	SPECIAL "Y"	12" SE. I.E. 102.90	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-8	10+12.26	0.00'	106.37	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	18" SW. I.E. 97.82 12" SW. I.E. 102.62 21" NE. I.E. 97.62	BOLT-DOWN MANHOLE COVER	FROM INLET DS-7
DS-9	11+50	28.92' RT.	105.21	48"	BT	12" NE. I.E. 100.41	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-10	11+50	28.92' LT.	105.21	18" x 12"	SPECIAL "Y"	12" SE. I.E. 102.21	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-11	11+56.27	24.0' RT.	105.43	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	21" SW. I.E. 97.24 12" SW. I.E. 100.51 12" NW. I.E. 101.70 21" NE. I.E. 97.14	BOLT-DOWN MANHOLE COVER	FROM INLET DS-9 FROM INLET DS-10
DS-12	14+28.85	24.0' RT.	104.98	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	21" SW. I.E. 96.45 12" SW. I.E. 99.97 12" NW. I.E. 101.22 21" NE. I.E. 96.35	BOLT-DOWN MANHOLE COVER	FROM INLET DS-13 FROM INLET DS-14
DS-13	14+19.94	28.92' RT.	104.77	48"	BT	12" NE. I.E. 100.17	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-14	14+19.94	28.92' LT.	104.77	18" x 12"	SPECIAL "Y"	12" SE. I.E. 101.77	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-15A	15+50.82	28.92' LT.	105.95	18" x 12"	SPECIAL "Y"	12" SE. I.E. 102.20	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-15	15+50.82	28.92' RT.	105.29	48"	BT	12" NE. I.E. 100.66	FLAT GRATE	TO DS-16
DS-16	15+60	24.0' RT.	105.45	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	21" SW. I.E. 95.70 12" NW. I.E. 101.62 12" SW. I.E. 100.49 24" NE. I.E. 95.60	BOLT-DOWN MANHOLE COVER	FROM INLET DS-15A FROM INLET DS-15
DS-17	17+78.94	28.92' RT.	106.25	48"	BT	12" NW. I.E. 101.65	FLAT GRATE	TO DS-18
DS-18	17+70.23	24.0' RT.	106.30	48"	STANDARD DWSD MANHOLE	24" SW. I.E. 95.20 12" NE. I.E. 101.45 12" SW. I.E. 101.63 24" NE. I.E. 95.10	BOLT-DOWN MANHOLE COVER	FROM INLET DS-17 FROM INLET DS-19
DS-19	18+71.94	28.92' LT.	106.25	18" x 12"	SPECIAL "Y"	12" SW. I.E. 102.75	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-20	18+56.62	28.92' LT.	105.49	18" x 12"	SPECIAL "Y"	12" SE. I.E. 102.49	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-21	18+71.91	12.0' RT.	106.07	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	24" SW. I.E. 94.84 12" NW. I.E. 102.03 12" NE. I.E. 101.00 24" NE. I.E. 94.74	BOLT-DOWN MANHOLE COVER	FROM INLET DS-20 FROM INLET DS-22A
DS-22A	19+00	28.92' RT.	105.84	48"	BT	12" SW. I.E. 101.34	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-22	20+29.20	28.92' RT.	104.80	48"	BT	12" N. I.E. 100.20	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-23	20+38.70	24.0' RT.	105.03	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	24" SW. I.E. 94.20 12" S. I.E. 100.00 12" NW. I.E. 101.25 24" NE. I.E. 94.10	BOLT-DOWN MANHOLE COVER	FROM INLET DS-22 FROM INLET DS-24

TABLE 1 - Continued

STRUCTURE NUMBER	LOCATION STATION	LOCATION OFFSET	RIM ELEV	SIZE	TYPE	SEWER SIZE, DIRECTION & INVERT	FRAME & COVER	REMARKS
DS-24	20+29.20	28.92' LT.	104.80	18" x 12"	SPECIAL "Y"	12" SE. I.E. 101.79	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-25	22+67.81	28.92' LT.	105.10	18" x 12"	SPECIAL "Y"	12" SE. I.E. 102.25	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-26	22+67.81	28.92' RT.	105.10	48"	BT	12" N. I.E. 100.45	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-27	22+78.71	24.0' RT.	105.29	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	24" SW. I.E. 93.33 12" NW. I.E. 101.65 12" S. I.E. 100.25 27" NE. I.E. 93.13	BOLT-DOWN MANHOLE COVER	FROM INLET DS-25 FROM INLET DS-26
DS-28	25+07.70	28.92' LT.	105.37	18" x 12"	SPECIAL "Y"	12" SE. I.E. 102.10	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-29	25+10.15	28.92' RT.	105.35	48"	BT	12" N. I.E. 100.75	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-30	25+18.12	24.0' RT.	105.56	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	27" SW. I.E. 92.52 12" NW. I.E. 101.58 12" S. I.E. 100.55 27" NE. I.E. 92.42	BOLT-DOWN MANHOLE COVER	FROM INLET DS-28 FROM INLET DS-29
DS-31	27+31.97	24.0' RT.	105.78	48"	STANDARD DWSD MANHOLE	27" SW. I.E. 91.81 12" N. I.E. 100.50 27" NW. I.E. 91.71	BOLT-DOWN MANHOLE COVER	FROM INLET DS-33
DS-32	27+49.29	28.92' LT.	105.56	24"	"A"	12" NE. I.E. 101.48	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-33	27+48.72	28.92' RT.	105.56	48"	BT	12" SW. I.E. 100.90 12" S. I.E. 100.70	FLAT GRATE	FROM INLET DS-32 CATCH BASIN TO C.E.D. STANDARD
DS-34	29+61.81	28.92' LT.	106.86	24"	"A"	12" NE. I.E. 102.64	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-35	29+61.81	28.92' RT.	106.86	48"	BT	12" SW. I.E. 102.06 12" NW. I.E. 101.96	FLAT GRATE	FROM INLET DS-34 CATCH BASIN TO C.E.D. STANDARD
DS-36	29+72.83	24.0' RT.	106.95	60"	STANDARD DWSD MANHOLE	27" SE. I.E. 90.85 21" SE. I.E. 93.80 12" SE. I.E. 101.66 36" NE. I.E. 90.75	BOLT-DOWN MANHOLE COVER	STUB FOR FUTURE ROAD FROM INLET DS-35
DS-37	31+81.81	28.92' LT.	107.87	24"	"A"	12" NE. I.E. 103.85	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-38	31+81.81	28.92' RT.	107.87	48"	BT	12" SW. I.E. 103.27 12" NW. I.E. 103.07	FLAT GRATE	FROM INLET DS-37 CATCH BASIN TO C.E.D. STANDARD
DS-39	31+90.21	24.0' RT.	108.09	60"	STANDARD DWSD MANHOLE	36" SE. I.E. 90.25 12" SE. I.E. 102.97 36" NW. I.E. 90.15	BOLT-DOWN MANHOLE COVER	FROM INLET DS-38
DS-40	34+01.81	28.92' LT.	109.08	24"	"A"	12" NE. I.E. 105.06	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-41	34+01.81	28.92' RT.	109.08	48"	BT	12" SW. I.E. 104.28 12" NW. I.E. 104.38	FLAT GRATE	FROM INLET DS-40 CATCH BASIN TO C.E.D. STANDARD
DS-42	34+10.22	24.0' RT.	109.30	60"	STANDARD DWSD MANHOLE	36" SE. I.E. 89.80 12" SE. I.E. 104.06 36" NW. I.E. 89.60	BOLT-DOWN MANHOLE COVER	FROM INLET DS-41
DS-43	36+21.81	28.92' LT.	110.29	24"	"A"	12" NE. I.E. 106.27	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-44	36+21.81	28.92' RT.	110.29	48"	BT	12" SW. I.E. 105.69 12" S. I.E. 105.49	FLAT GRATE	FROM INLET DS-43 CATCH BASIN TO C.E.D. STANDARD
DS-45	36+13.09	24.0' RT.	110.40	60"	STANDARD DWSD MANHOLE	36" SE. I.E. 89.00 12" N. I.E. 105.29 36" NW. I.E. 88.90	BOLT-DOWN MANHOLE COVER	FROM INLET DS-44
DS-46	39+32.63	28.92' LT.	109.98	24"	"A"	12" NE. I.E. 106.52	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-47	39+32.63	28.92' RT.	109.98	48"	REDUCED CONE BT	12" SW. I.E. 105.94 12" NW. I.E. 105.00	FLAT GRATE	FROM INLET DS-43 CATCH BASIN TO C.E.D. STANDARD
DS-48	39+58.15	24.0' RT.	110.24	60"	STANDARD DWSD MANHOLE	36" SE. I.E. 87.97 12" SE. I.E. 104.74 15" NW. I.E. 80.00	BOLT-DOWN MANHOLE COVER	FROM INLET DS-47 OUTLET TO D.R.I.

NOTE: ALL CATCH BASIN AND MANHOLE COVERS SHALL BE BOLTED DOWN IN ACCORDANCE WITH DWSD STANDARDS.

TABLE 2 - Combined Sewer Schedule

FROM STRUCTURE	TO STRUCTURE	LENGTH (FEET)	SIZE (IN)	SEWER TYPE	SLOPE %	UPSTREAM INV. ELEV.	DOWNSTREAM INV. ELEV.	REMARKS
DS-3	DS-5A	151	18	C76 - CL. IV	0.30%	99.61	99.16	
DS-5A	DS-5	160	18	C76 - CL. IV	0.30%	99.06	98.60	
DS-5	DS-8	209	18	C76 - CL. V	0.33%	98.50	97.82	UNDER FUTURE RAILROAD SPUR
DS-8	DS-11	151	21	C76 - CL. IV	0.25%	97.62	97.24	
DS-11	DS-12	274	21	C76 - CL. IV	0.25%	97.14	96.45	
DS-12	DS-16	180	21	C76 - CL. IV	0.36%	96.35	95.70	
DS-16	DS-18	162	24	C76 - CL. V	0.25%	95.60	95.20	UNDER FUTURE RAILROAD SPUR
DS-18	DS-21	103	24	C76 - CL. V	0.25%	95.10	94.84	UNDER FUTURE RAILROAD SPUR
DS-21	DS-23	172	24	C76 - CL. IV	0.32%	94.74	94.20	
DS-23	DS-27	240	24	C76 - CL. IV	0.32%	94.10	93.33	
DS-27	DS-30	240	27	C76 - CL. IV	0.25%	93.13	92.52	
DS-30	DS-31	226	27	C76 - CL. IV	0.27%	92.42	91.81	
DS-31	DS-36	247	27	C76 - CL. IV	0.35%	91.71	90.85	
DS-36	DS-39	217	36	C76 - CL. IV	0.23%	90.75	90.25	
DS-39	DS-42	220	36	C76 - CL. IV	0.25%	90.15	89.60	
DS-42	DS-45	203	36	C76 - CL. IV	0.25%	89.50	89.00	
DS-45	DS-48	344	36	C76 - CL. IV	0.27%	88.90	87.97	
DS-48	D.R.I.	19	15	C75 - CL. IV	1.00%	80.00	79.80	
FUTURE ROAD R.O.W.	DS-36	80	21	C76 - CL. IV	0.56%	93.34	92.90	STUB FOR FUTURE ROAD. INSTALL BRICK BULKHEADS

C5082

TABLE 3 - Storm Structures on Schroeder Outfall

STRUCTURE NUMBER	LOCATION STATION	LOCATION OFFSET	RIM ELEV	SIZE	TYPE	SEWER SIZE, DIRECTION & INVERT	FRAME & COVER	REMARKS
DS-101	8+84.44	12.0' LT.	105.69	48"	STANDARD DWSD MANHOLE	12" NW. I.E. 100.76 18" SE. I.E. 100.66	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 9
DS-102	9+49.40	12.0' LT.	106.69	48"	STANDARD DWSD MANHOLE	18" NW. I.E. 100.34 18" NE I.E. 100.24	BOLT-DOWN MANHOLE COVER	
DS-103	10+49.66	12.0' LT.	106.05	48"	STANDARD DWSD MANHOLE	18" W. I.E. 99.85 15" NW. I.E. 99.96 24" NE. I.E. 99.75	BOLT-DOWN MANHOLE COVER	STORM INLET FROM DS-104
DS-104	10+47.55	24.0' LT.	105.81	48"	STANDARD DWSD MANHOLE	15" NW. I.E. 100.12 15" SE I.E. 100.02	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 10
DS-105	12+49.62	12.0' LT.	105.91	48"	STANDARD DWSD MANHOLE	24" SW. I.E. 99.36 24" NE. I.E. 99.26	BOLT-DOWN MANHOLE COVER	
DS-106	15+15.20	12.0' LT.	105.87	60"	STANDARD DWSD MANHOLE	24" SW. I.E. 98.73 15" SE. I.E. 99.97 12" SE. I.E. 98.63 30" NE. I.E. 98.63	BOLT-DOWN MANHOLE COVER	STORM FROM INLET DS-107 STORM FROM INLET DS-108
DS-107	15+02.76	12.0' RT.	105.45	48"	STANDARD DWSD MANHOLE	15" SE. I.E. 100.31 15" NW. I.E. 100.21	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 6
DS-108	15+15.20	0.00'	105.67	48"	STANDARD DWSD MANHOLE	12" SE. I.E. 99.02 12" NW. I.E. 98.92	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 5
DS-109	18+55.16	12.0' LT.	105.78	60"	STANDARD DWSD MANHOLE	30" SW. I.E. 97.95 15" SE. I.E. 99.13 36" NE. I.E. 97.85	BOLT-DOWN MANHOLE COVER	STORM INLET FROM DS-110
DS-110	18+46.90	0.00'	106.05	48"	STANDARD DWSD MANHOLE	15" SE. I.E. 98.43 15" NW. I.E. 98.33	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 4
DS-111	21+14.50	12.0' LT.	105.64	72"	STANDARD DWSD MANHOLE	36" SW. I.E. 97.34 24" NW. I.E. 98.82 42" NE. I.E. 97.24	BOLT-DOWN MANHOLE COVER	STORM INLET FROM DS-111A
DS-111A	21+12.56	24.0' LT.	105.45	48"	STANDARD DWSD MANHOLE	24" NW. I.E. 98.99 24" SE I.E. 98.69	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 12
DS-112	25+00	12.0' LT.	105.81	72"	STANDARD DWSD MANHOLE	42" SW. I.E. 96.47 24" SE. I.E. 97.56 48" NE. I.E. 96.37	BOLT-DOWN MANHOLE COVER	STORM INLET FROM DS-113
DS-113	25+00	0.00'	105.99	48"	STANDARD DWSD MANHOLE	24" SE. I.E. 97.73 24" NW. I.E. 97.63	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 2
DS-114	26+99.86	0.00'	105.24	72"	STANDARD DWSD MANHOLE	48" SW. I.E. 95.98 48" NE. I.E. 95.88	BOLT-DOWN MANHOLE COVER	
DS-115	27+36.03	128.78' RT.	105.00	72"	STANDARD DWSD MANHOLE	48" SW. I.E. 95.61 15" NW. I.E. 97.71 48" NE. I.E. 95.51	BOLT-DOWN MANHOLE COVER	STORM INLET FROM DS-116
DS-116	27+44.08	125.74' RT.	105.00	48"	STANDARD DWSD MANHOLE	15" NW. I.E. 97.90 15" SE I.E. 97.80	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 1
DS-117	27+57.92	268.57' RT.	106.75	72"	STANDARD DWSD MANHOLE	48" SW. I.E. 95.10 48" NE. I.E. 95.10	BOLT-DOWN MANHOLE COVER	

REFER TO SHEET C4.10 FOR DETAILS OF DRAINAGE STRUCTURES, DS-118 & DS-119.

TABLE 4 - Sewer Schedule to Schroeder Outfall

FROM STRUCTURE	TO STRUCTURE	LENGTH (FEET)	SIZE (IN)	SEWER TYPE	SLOPE %	UPSTREAM INV. ELEV.	DOWNSTREAM INV. ELEV.	REMARKS
DS-101	DS-102	183	18	HDPE	0.20%	100.86	100.34	
DS-102	DS-103	195	18	HDPE	0.20%	100.24	99.86	
DS-103	DS-105	194	24	HDPE	0.20%	99.75	99.36	
DS-105	DS-106	266	24	HDPE	0.20%	99.26	98.73	
DS-106	DS-109	340	30	HDPE	0.20%	98.63	97.95	
DS-109	DS-111	254	36	HDPE	0.20%	97.85	97.34	
DS-111	DS-112	386	42	HDPE	0.20%	97.24	96.47	
DS-112	DS-114	193	48	HDPE	0.20%	96.37	95.98	
DS-114	DS-115	136	48	HDPE	0.20%	95.98	95.61	
DS-115	FLAP GATE CHAMBER INLET	170	48	HDPE	0.25%	95.51	95.09	CAST HDPE PIPE INTO GATE CHAMBER
FLAP GATE CHAMBER OUTLET	SCHROEDER CHAMBER	34	48	HDPE	0.25%	94.09	94.00	CAST HDPE PIPES INTO CHAMBERS

TABLE 5 - Fire Hydrant Locations

FIRE HYDRANT LOCATIONS				
#	ROAD STA.	ROAD OFFSET	W.M. STA.	W.M. OFFSET
1	-	-	402+50.53	9.6' L.
2	-	-	404+15.10	9.4' L.
3	6+22.11	33' L.	418+96.21	5.75' R.
4	9+45.7	33' L.	422+05.57	9.8' R.
5	11+93.53	33' L.	424+31.51	16.46' R.
6	14+93.86	33' L.	427+26.59	17.5' R.
7	17+93.86	33' L.	430+26.59	17.5' R.
8	20+29.65	33' L.	432+47.94	7.75' R.
9	23+29.65	33' L.	435+47.54	7.0' R.
10	26+48.64	33' L.	438+50.73	4.37' L.
11	29+67.68	33' L.	441+56.03	8.14' L.
12	32+07.09	33' L.	443+95.44	8.22' L.
13	35+07.09	33' L.	446+95.44	8.22' L.
14	38+05.83	33' L.	449.97.03	16.22' L.

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: D.L.S.	DATE 3-18-04
HEAD ENGR.-DES.	DATE 3-20-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	L#
MDEQ	D JOB#
MDPH	
RAP	DRUG/REP SELER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

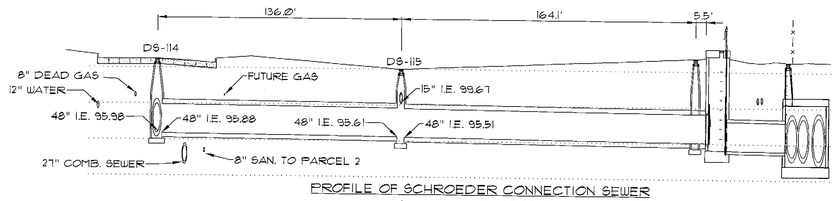
DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 755-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2564 WWW.TYJ.COM

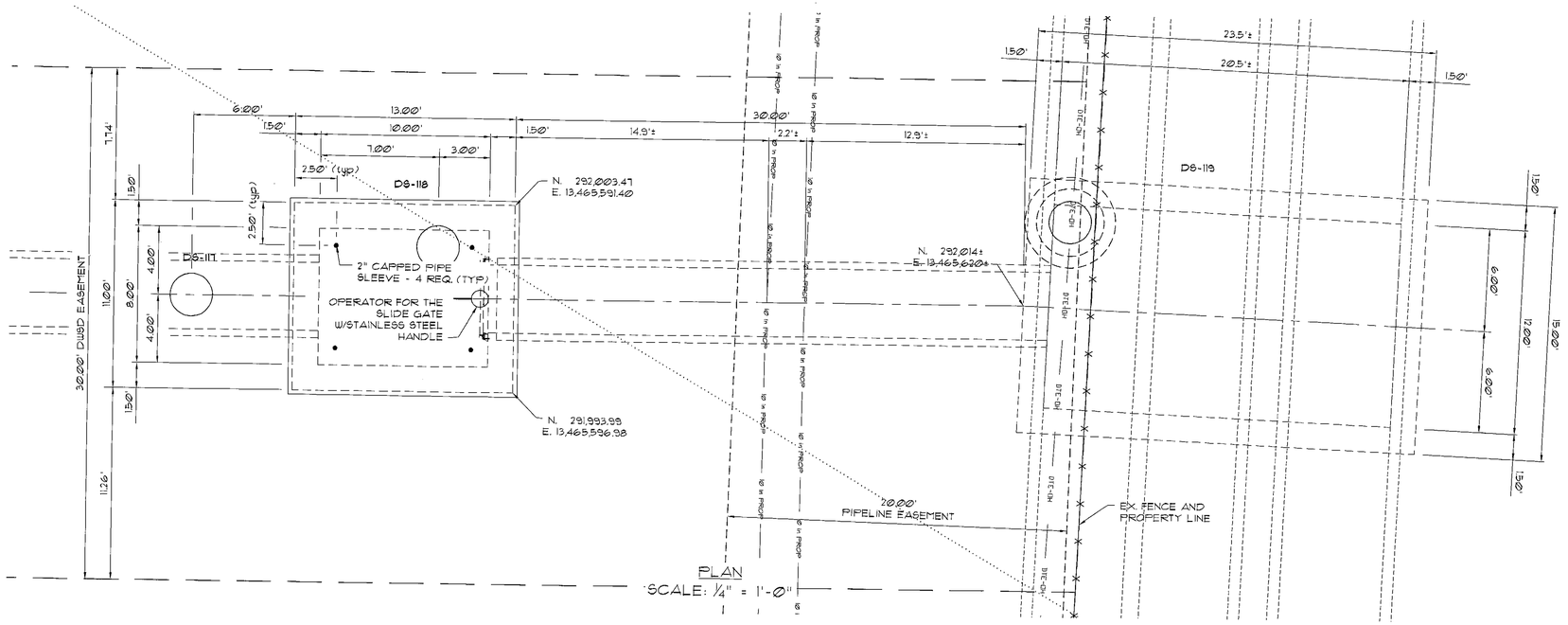
PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: STRUCTURE TABLES
SHEET NO.: C4.01

2332-13



PROFILE OF SCHROEDER CONNECTION SEWER

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

WORK SHALL BE IN ACCORDANCE WITH THE 2003 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND SPECIAL PROVISIONS. STRUCTURAL CONCRETE SHALL BE MDOT GRADE S1 AND REINFORCING STEEL SHALL BE ASTM A615, GRADE 60.

THE FLAP GATE SHALL BE 48" RODNEY HUNT FV-AC FLAP GATE MOUNTED TO A CAST IRON WALL THIMBLE OR AN APPROVED EQUAL.

THE SLIDE GATE SHALL BE OF ALUMINUM CONSTRUCTION AND THE RODNEY HUNT HY-Q GATE SERIES OR AN APPROVED EQUAL.

COMPLETE SHOP DRAWINGS AND DETAILS OF INSTALLATION FOR THE FLAP GATE AND SLIDE GATE SHALL BE PROVIDED FOR DWSD REVIEW AND APPROVAL.

PROVIDE 2 ADDITIONAL #6 BARS DIAGONALLY IN EACH FACE OF THE SLAB AND WALLS AT ALL PENETRATIONS OR OPENINGS LARGER THAN 12".

PROVIDE CORNER BARS 24"X24" TO LAP WITH HORIZONTAL REINFORCEMENT. PROVIDE SHOP DRAWINGS FOR THE REINFORCING STEEL FOR REVIEW AND APPROVAL.

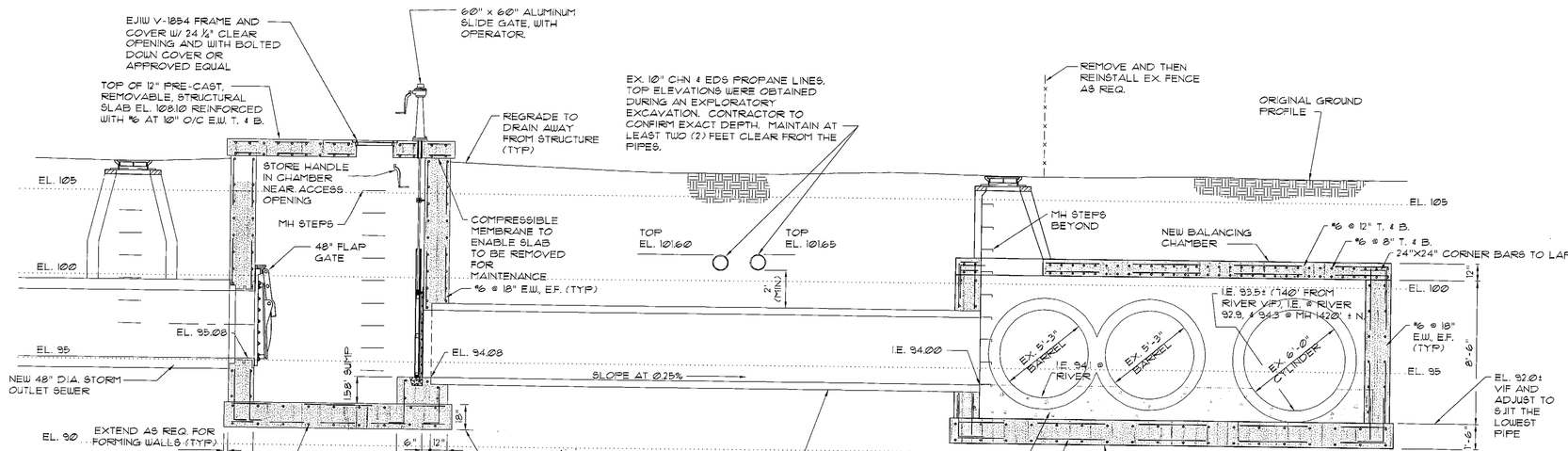
CAREFULLY EXPOSE BOTH PROPANE PIPE LINES TO CONFIRM ASSUMED LOCATIONS AND PROVIDE SUPPORT FOR MORE THAN 20 FEET OF UNSUPPORTED PIPE LINE (TYP.).

PROVIDE STAINLESS STEEL ANCHORS AND SUPPORT TO STORE THE OPERATOR HANDLE IN THE CHAMBER FOR CONVENIENT ACCESS FROM THE OPENING.

THE FOUNDATION AND WALLS FOR THE BALANCING CHAMBER SHALL BE CONSTRUCTED WITH THE 3 EXISTING LINES INTACT AND SUPPORTED IN PLACE TO MAINTAIN FLOW.

DEMOLITION OF THE SEWERS, INSIDE THE CHAMBER, WILL INCLUDE PREVENTING RIVER WATER FROM ENTERING WITH INFLATABLE BLADDERS OR OTHER APPROVED MEANS AND WILL ONLY BEGUN WITH PRIOR DWSD APPROVAL AND WHEN THE RAIN FORCAST IS VERY FAVORABLE. THE CONTRACTOR SHALL MAINTAIN FLOW IN THE SEWER DURING ALL RAIN EVENTS.

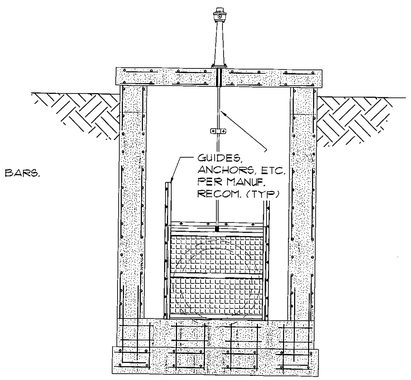
ALL WATER PUMPED FROM THE EXISTING OUTFALL DURING CONSTRUCTION SHALL BE DISCHARGED TO THE COMBINED SEWER. OBTAIN A DISCHARGE PERMIT FROM DWSD'S INDUSTRIAL WASTE SECTION.



SECTION ALONG CENTER LINE OF PIPE

SCALE: 1/4" = 1'-0"

NOTE: ELEVATIONS OF EX. OUTFALL SEWERS ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM EXACT ELEVATIONS IN THE FIELD.



ELEVATION OF SLIDE GATE

SCALE: 1/4" = 1'-0"

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: M. Kuhn	DATE 3-30-04
HEAD ENGR.-DES.	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	L&S#
MDEQ	D JOB#
MDPH	
R/U#	DRUG/REF# SEWER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY
CHECKED BY
APPROVED BY

Iafrate
ANGELO IAFRATE CONSTRUCTION COMPANY
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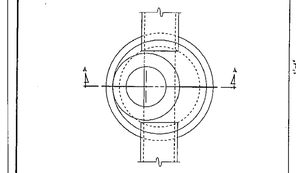
TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-0540 FAX (313) 963-2186 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING

SHEET TITLE: SCHROEDER OUTFALL CHAMBERS

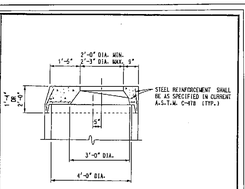
DATE: 3-16-04

SHEET NO. C4.10



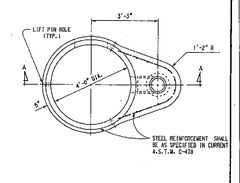
SECTION A - A
TYPICAL MANHOLE

PRECAST REINFORCED CONCRETE SHOWN
OTHER OPTIONS INCLUDE CONCRETE BLOCK, BRICK, OR CAST-IN-PLACE WALL SECTIONS
SEE TYPICAL WALL SECTIONS FOR WALL THICKNESS



DETAIL FOR
1'-4" & 2'-0" TOP SECTIONS

SHAPE MAY VARY FROM DETAIL SHOWN BUT MUST COMPLY WITH A.S.T.M. C-478 AND JOINTS SHALL BE COMPATIBLE WITH THE RISER



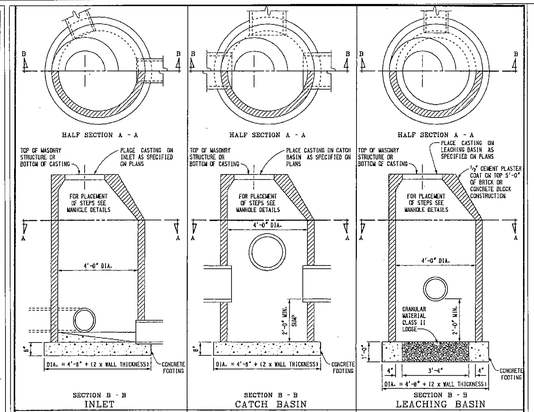
SECTION A - A
TYPICAL PRECAST REINFORCED
BOTTOM SECTION FOR DROP MANHOLE

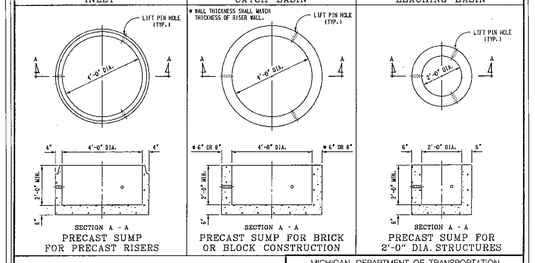
MDOT	ENGINEER OF CONSTRUCTION & TECHNOLOGY	ENGINEER - ROAD DESIGN		
PREPARED BY DESIGN DIVISION	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN	DEPARTMENT DIRECTION Gregory J. Rosine	
DRAWN BY: B.B.T.		BY: CHIEF ENGINEER/DEPUTY DIRECTOR		
CHECKED BY: W.V.P.	ENGINEER OF TRAFFIC AND SAFETY	BUREAU OF HIGHWAY TECHNICAL SERVICES	12-21-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

DRAINAGE STRUCTURES

12-21-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE	R-1-D	SHEET 1 OF 5

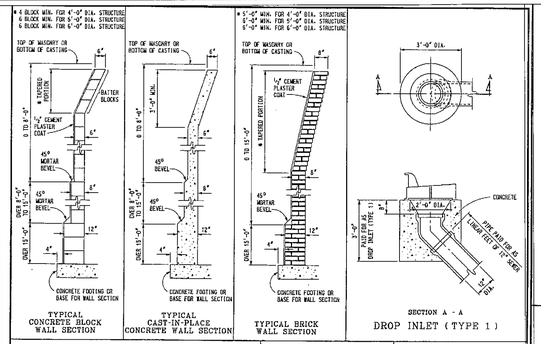


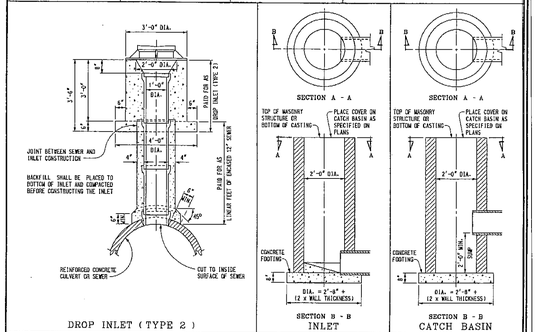


MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

DRAINAGE STRUCTURES

12-21-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE	R-1-D	SHEET 2 OF 5

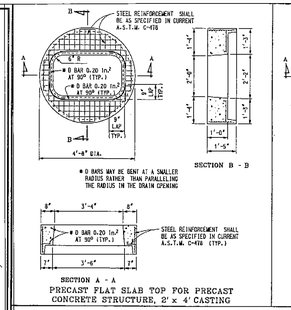


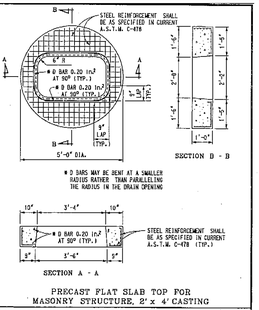


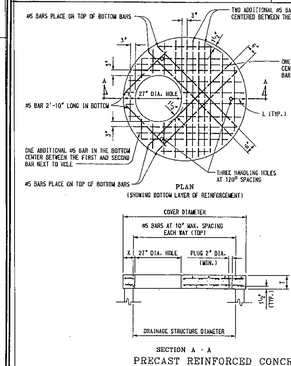
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

DRAINAGE STRUCTURES

12-21-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE	R-1-D	SHEET 3 OF 5







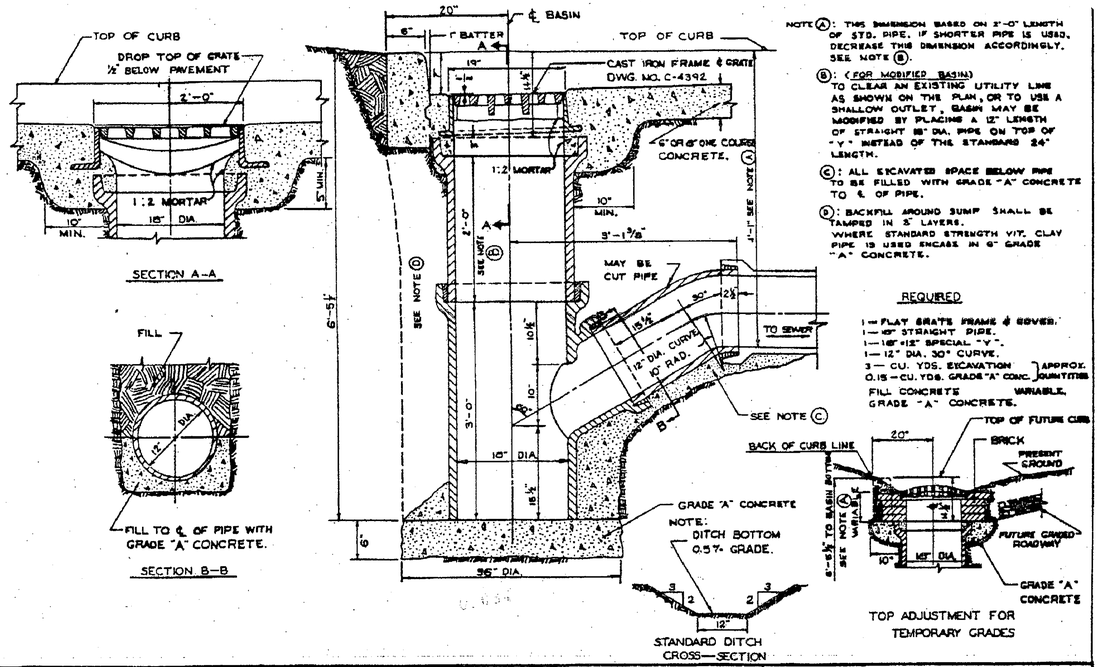
SECTION A - A
PRECAST REINFORCED CONCRETE FLAT SLAB TOP

TABLE OF DIMENSIONS					
STRUCTURE DIAMETER	COVER DIAMETER	T	K	L	#5 BAR MAXIMUM SPACING (BOTTOM EACH WAY)
4'-0"	58"	8"	5"	8"	6"
5'-0"	72"	8"	7"	9"	7"
6'-0"	86"	8"	8"	10"	6"

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

DRAINAGE STRUCTURES

12-21-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE	R-1-D	SHEET 4 OF 5

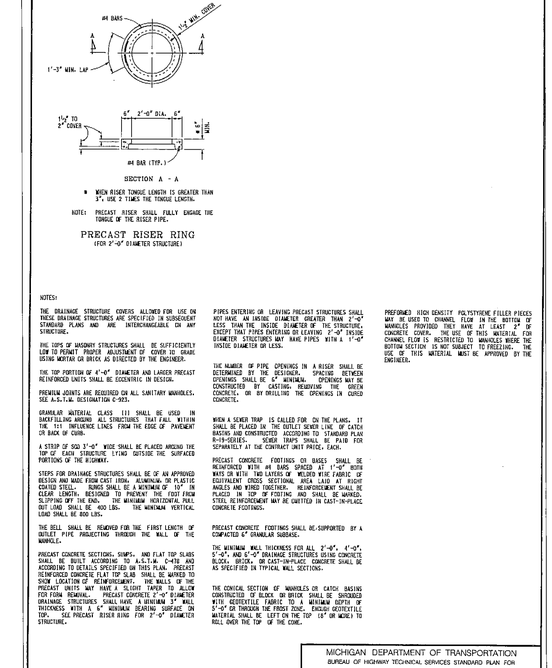


		DESIGNED BY	APPROVED	CITY OF DETROIT
		DRAWN BY G. Clark	ENGINEER OF STREETS	CITY ENGINEERING DEPARTMENT
6	CHANGE CONC. TO GR "A"	TRACED BY	ASST. CITY ENGINEER	BUREAU OF STREETS AND HIGHWAYS
5	CHANGE TO 2'-0" DIA.	CHECKED BY	CITY ENGINEER	DETAIL: STANDARD NO. 11
NO.	REVISIONS	DATE	BY	

STANDARD DESIGN
18" × 12" SPECIAL "Y" CATCH BASIN
TO BE USED UNLESS DIRECTED OTHERWISE BY FIELD ENGINEER

BOOK NO. | SCALE 1"=1'-0" | DWG. NO. C-4388
PAGE NO. | DATE R-19-66

ALTERNATE DETAILS FOR MANHOLES ONLY



NOTES:

THE DRAINAGE STRUCTURE COVERS ALLOWED FOR USE ON THESE DRAINAGE STRUCTURES ARE SPECIFIED IN SUBSEQUENT STANDARD PLANS AND ARE INTERCHANGEABLE ON ANY STRUCTURE.

RING TOPS OF MASONRY STRUCTURES SHALL BE SUFFICIENTLY LOW TO PERMIT PROPER ADJUSTMENT OF COVER TO GRADE USING MORTAR OR BRICK AS DIRECTED BY THE ENGINEER.

THE TOP PORTION OF 4'-0" DIAMETER AND LARGER PRECAST REINFORCED UNITS MAY BE ECCENTRIC IN DESIGN.

PREMIUM JOINTS ARE REQUIRED ON ALL SANITARY MANHOLES. SEE A.S.T.M. DESIGNATION C-923.

GRANULAR MATERIAL CLASS III SHALL BE USED IN BACKFILLING AROUND ALL STRUCTURES THAT FALL WITHIN THE 1:1 INFLUENCE LINES FROM THE EDGE OF PAVEMENT OR BACK OF CURB.

A STRIP OF SOD 3'-0" WIDE SHALL BE PLACED AROUND THE TOP OF EACH STRUCTURE LYING OUTSIDE THE SURFACED PORTIONS OF THE R.O.W.

STEPS FOR DRAINAGE STRUCTURES SHALL BE OF AN APPROVED DESIGN AND MADE FROM CAST IRON, ALUMINUM, OR PLASTIC COATED STEEL. RUNGS SHALL BE A MINIMUM OF 10" IN CLEAR LENGTH, RECESSED TO PREVENT THE FOOT FROM SLIPPING OFF THE ENDS. THE MINIMUM HORIZONTAL PULL OUT LOAD SHALL BE 400 LBS. THE MINIMUM VERTICAL LOAD SHALL BE 800 LBS.

THE BELL SHALL BE REAMED FOR THE FIRST LENGTH OF OUTLET PIPE PROJECTING THROUGH THE WALL OF THE MANHOLE.

PRECAST CONCRETE SECTIONS, SUMPS, AND FLAT TOP SLABS SHALL BE BUILT ACCORDING TO A.S.T.M. C-478 AND ACCORDING TO DETAILS SPECIFIED ON THIS PLAN. PRECAST REINFORCED CONCRETE FLAT TOP SLAB SHALL BE MARKED TO SHOW LOCATION OF REINFORCEMENT. THE WALLS OF THE PRECAST UNITS MAY HAVE A SLIGHT TAPER TO ALLOW FOR FORM REMOVAL. PRECAST CONCRETE 2'-0" DIAMETER DRAINAGE STRUCTURES SHALL HAVE A MINIMUM 3" WALL THICKNESS WITH A 6" MINIMUM BEARING SURFACE ON TOP. SEE PRECAST RISER RING FOR 2'-0" DIAMETER STRUCTURE.

PIPES ENTERING OR LEAVING PRECAST STRUCTURES SHALL NOT HAVE AN INSIDE DIAMETER GREATER THAN 2'-0" LESS THAN THE INSIDE DIAMETER OF THE STRUCTURE, EXCEPT THAT PIPES ENTERING OR LEAVING 2'-0" INSIDE DIAMETER STRUCTURES MAY HAVE PIPES WITH A 1'-0" INSIDE DIAMETER OR LESS.

THE NUMBER OF PIPE OPENINGS IN A RISER SHALL BE DETERMINED BY THE DESIGNER. SPACING BETWEEN OPENINGS SHALL BE 6" MINIMUM. OPENINGS MAY BE CONSTRUCTED BY CASTING, REMOVING THE GREEN CONCRETE, OR BY DRILLING THE OPENINGS IN CURED CONCRETE.

WHEN A SEWER TRAP IS CALLED FOR ON THE PLANS, IT SHALL BE PLACED IN THE OUTLET SEWER LINE OF CATCH BASINS AND CONSTRUCTED ACCORDING TO STANDARD PLAN R-19-SERIES. SEWER TRAPS SHALL BE PAID FOR SEPARATELY AT THE CONTRACT UNIT PRICE, EACH.

PRECAST CONCRETE FOOTINGS OR BASES SHALL BE REINFORCED WITH #4 BARS SPACED AT 1'-0" BOTH WAYS OR WITH TWO LAYERS OF WELDED WIRE FABRIC OF EQUIVALENT CROSS SECTIONAL AREA LAID AT RIGHT ANGLES AND WIRED TOGETHER. REINFORCEMENT SHALL BE PLACED IN TOP OF FOOTING AND SHALL BE MARKED. STEEL REINFORCEMENT MAY BE OMITTED IN CAST-IN-PLACE CONCRETE FOOTINGS.

PRECAST CONCRETE FOOTINGS SHALL BE SUPPORTED BY A COMPACTED 6" GRANULAR SUBBASE.

THE MINIMUM WALL THICKNESS FOR ALL 2'-0", 4'-0", 5'-0", AND 6'-0" DRAINAGE STRUCTURES USING CONCRETE BLOCK, BRICK, OR CAST-IN-PLACE CONCRETE SHALL BE AS SPECIFIED IN TYPICAL WALL SECTIONS.

THE CONICAL SECTION OF MANHOLES OR CATCH BASINS CONSTRUCTED OF BLOCK OR BRICK SHALL BE SHROUDED WITH GEOTEXTILE FABRIC TO A MINIMUM DEPTH OF 5'-0" OR THROUGH THE FROST ZONE. ENCLOSE GEOTEXTILE MATERIAL SHALL BE LEFT ON THE 18" OR MORE TO ROLL OVER THE TOP OF THE CONE.

PREFORMED HIGH DENSITY POLYSTYRENE FILLER PIECES MAY BE USED TO CHANNEL FLOW IN THE BOTTOM OF MANHOLES PROVIDED THEY HAVE AT LEAST 2" OF CONCRETE COVER. THE USE OF THIS MATERIAL FOR CHANNEL FLOW IS RESTRICTED TO MANHOLES WHERE THE BOTTOM SECTION IS NOT SUBJECT TO FREEZING. THE USE OF THIS MATERIAL MUST BE APPROVED BY THE ENGINEER.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

DRAINAGE STRUCTURES

12-21-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE	R-1-D	SHEET 5 OF 5

DIWSD SYSTEM ACCEPTANCE

DESIGN REVIEWED: DLS M. Nielsen	DATE 3-18-04
HEAD ENGR-DES.	DATE 3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO.	L6*
MDEQ	D JOB*
MDPH	
R/W*	DRUG/RSF* SEWER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN 48091
(586) 756-1070

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-8012 FAX (313) 963-7196 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: SPECIAL DETAILS
SHEET NO. C4.23

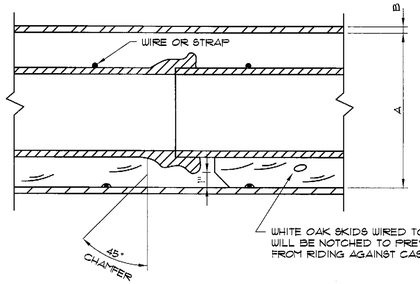
2332-15

DIA. OF WATER MAIN	MIN. I.D. "A"	ROAD CROSSING	RAILROAD CROSSING
		MIN. "B"	MIN. "B"
6"	14"	.250	.312
8"	16"	.250	.375
12"	20"	.250	.438
16"	24"	.375	.500
20"	30"	.375	.500
24"	36"	.375	.500

CASING PIPE SHALL BE SPIRAL WELDED STEEL PIPE A.S.T.M. A-252, GR. 2

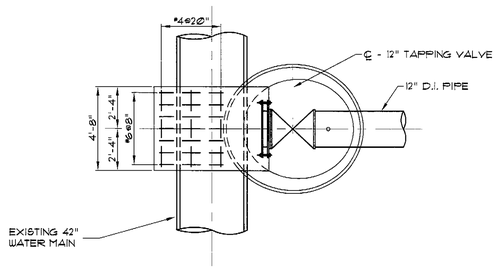
NOTES:

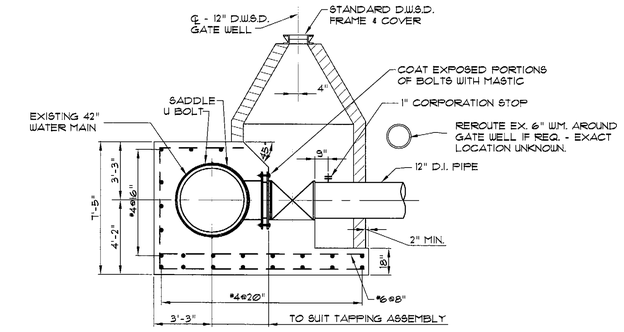
1. NO WATER SHALL BE USED IN BORING UNDER RAILROADS.
2. MAINTAIN MIN. OF 5'-6" OF COVER BETWEEN BASE OF RAIL & TOP OF CASING.
3. THE ENDS OF THE CASING SHALL BE SUITABLY PROTECTED AGAINST THE ENTRANCE OF FOREIGN MATERIAL, BUT SHALL NOT BE TIGHTLY SEALED.



STANDARD CASING SECTION

SCALE: NONE



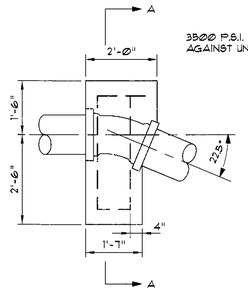


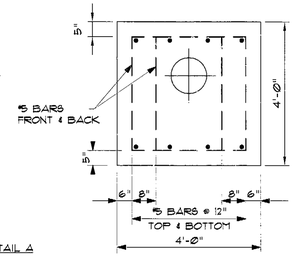
42"x12" PRESSURE TAP VALVE & WELL ASSEMBLY REINFORCED CONCRETE ENCASEMENT

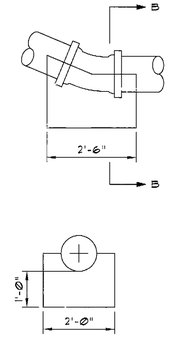
GENERAL NOTES:

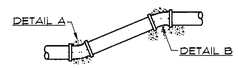
MAINTAIN AT LEAST ONE FOOT CLEAR BETWEEN ALL CROSSING UNDERGROUND UTILITIES.

PROVIDE BRICK BULKHEADS AT ALL SEWER STUB ENDINGS AND RECORD THE "AS BUILT" LOCATIONS.



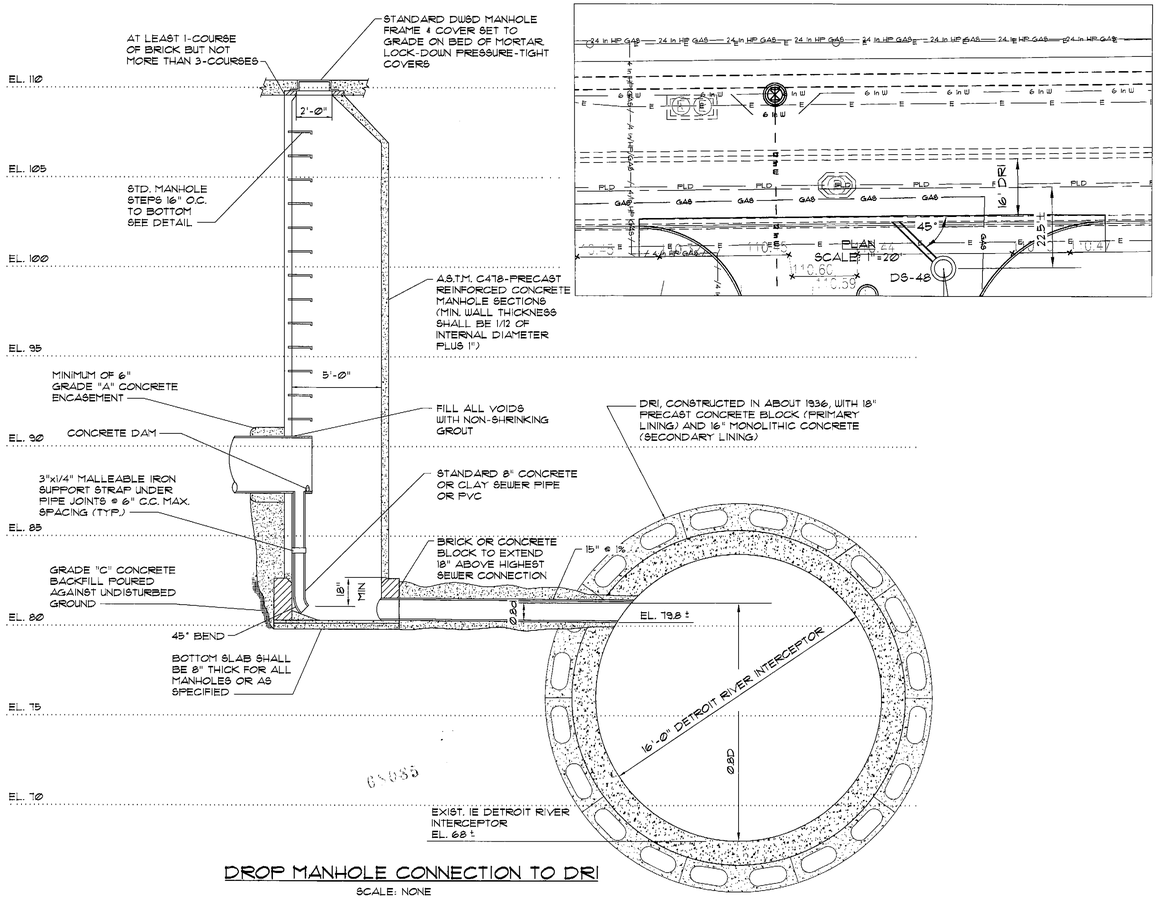






DETAIL B

ANCHORAGE FOR 12"-22.5° VERTICAL BENDS

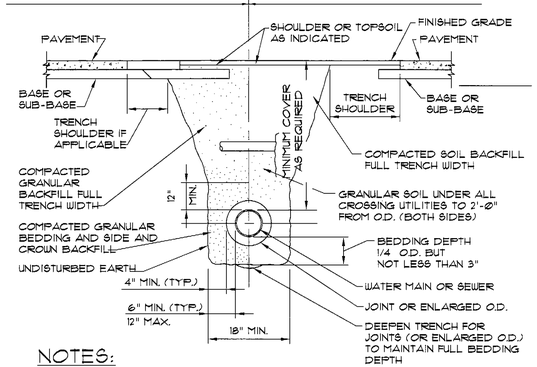


DROP MANHOLE CONNECTION TO DRI

SCALE: NONE

CONDITIONS FOR WATER MAINS & SEWERS UNDER OR NEAR PAVEMENTS (TR 'A')

CONDITIONS FOR WATER MAINS & SEWERS NOT UNDER OR NEAR PAVEMENT (TR 'B')

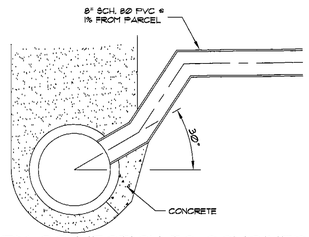


NOTES:

1. REMOVE EXISTING PAVEMENT WHEN NECESSARY TO PROVIDE A TEMPORARY TRENCH SHOULDER OF 1'-6" MIN. AND REPLACE AFTER BACKFILLING.
2. PAVEMENT INCLUDES CONCRETE, BITUMINOUS, OR AGGREGATE SURFACES INDICATED AS NEW, FUTURE, EXISTING TO REMAIN, OR EXISTING TO BE REPLACED. SURFACES INCLUDE ROADS, WALKS, PADS, ETC.
3. BACKFILL "NOT UNDER OR NEAR PAVEMENTS" APPLIES ONLY WHERE TYPE OF TRENCH AND/OR CLEARANCE TO PAVEMENT IS SUCH THAT THE TRENCH SHOULDER IS 1'-6" MIN. PRIOR TO ANY REMOVAL OF EXISTING PAVEMENT.

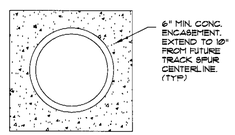
WATER MAIN AND SEWER TRENCH DETAIL

SCALE: NONE



SANITARY CONNECTION TO COMBINED SEWER DETAIL

SCALE: NONE



CONCRETE ENCASEMENT DETAIL

SCALE: NONE

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Kudsian	DATE 3-18-04
HEAD ENGR.-DBS. Shant Ord	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	L.P.
MDEQ	D JOB#
MDPH	
R/U#	DRAIN/REP SEWER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY
CHECKED BY
APPROVED BY

Iafrate ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-0612 FAX (313) 963-2186 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING

SHEET TITLE: MISC. WATER & SEWER DETAILS

DATE: 3-16-04

SHEET NO. C4.40

2332-16

65056

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS MKu...	DATE 3-5-14
HEAD ENGR-DES. Richard Desh	3-30-14
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO. MDEQ MDPH	L.S.# D JOB.#
R/U#	DRWG/REF# INCLUDE WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

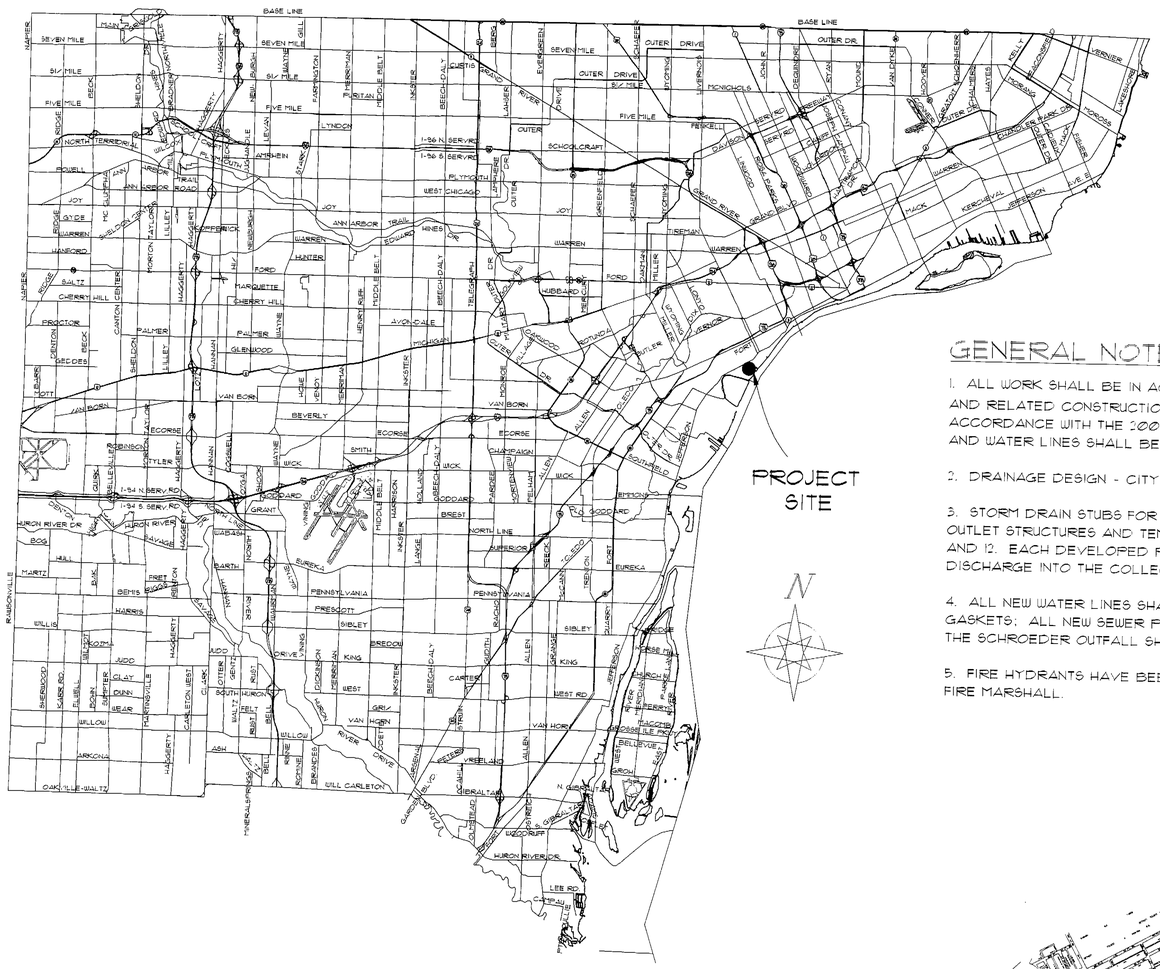
TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
949 E. LAFAYETTE SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2186 WWW.TYJT.COM

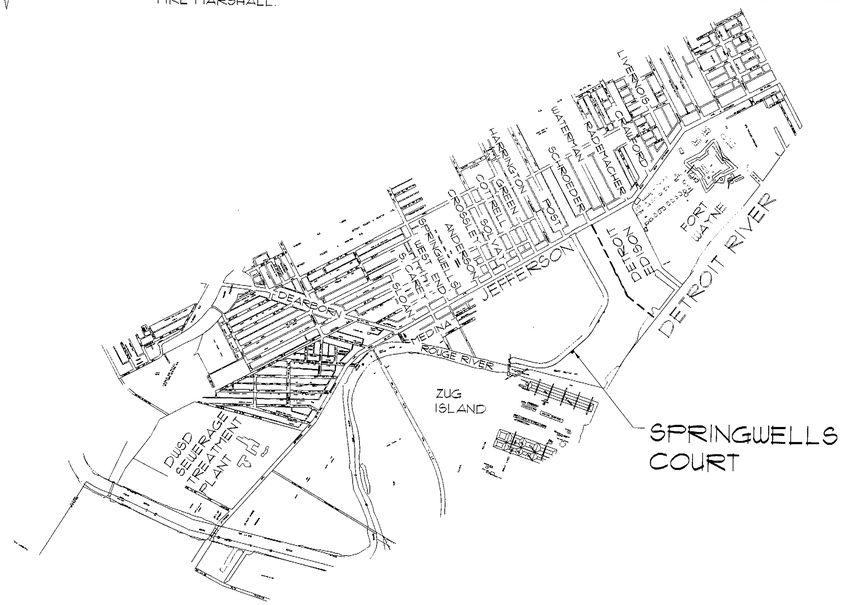
PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: DWSD MISCELLANEOUS DETAILS
SHEET NO.: C4.30

2332-17

CITY OF DETROIT
ECONOMIC DEVELOPMENT CORPORATION

PAVING OF SPRINGWELLS COURT
SOUTH OF JEFFERSON AVE.





INDEX OF SHEETS BY TYJT

1	TITLE SHEET
C1.10	GENRAL PLAN OF SITE
C1.11	SURVEY CONTROL PLAN
C1.20	SITE PLAN
C1.30	TYPICAL CROSS SECTIONS
C1.40	SOIL EROSION CONTROL PLAN
C1.50	ALIGNMENT PLAN
C2.10	UTILITY PLAN - YELLOW FREIGHT PROPERTY
C2.11	UTILITY PLAN - 3+50 TO 11+00
C2.12	UTILITY PLAN - 11+00 TO 20+60
C2.13	UTILITY PLAN - 20+60 TO 30+00
C2.14	UTILITY PLAN - 30+00 TO JEFFERSON
C3.11	PLAN & PROFILES - 3+50 TO 16+00
C3.12	PLAN & PROFILES - 16+00 TO 28+50
C3.13	PLAN & PROFILES - JEFFERSON TO 28+50
C3.22	RAILROAD PROFILES
C3.31	WATER MAIN PROFILE YELLOW FREIGHT PROP.
C3.41	MISC. PROFILES
C3.42	MISC. PROFILES
C3.51	DETAILED GRADE AREA 3+50 TO 6+50
C3.52	DETAILED GRADE AREA 6+50 TO 11+50
C3.53	DETAILED GRADE AREA 14+20 TO 20+30
C3.54	DETAILED GRADE AREA 31+00 TO JEFFERSON
C4.01	STRUCTURE TABLES
C4.10	SCHROEDER OUTFALL CHAMBERS
C4.20	STANDARD DETAILS
C4.21	SPECIAL DETAILS
C4.22	SPECIAL DETAILS
C4.23	SPECIAL DETAILS
C4.30	DWSD MISC. DETAILS
C4.40	SEWER DETAILS
C5.10	PAVEMENT MARKING AND SIGNING PLAN

INDEX OF SHEETS BY MCECO/CEA

1	LEGEND
2	GENERAL INFORMATION
3	STREET LIGHTING - JEFFERSON TO 31+00
4	STREET LIGHTING - 19+00 TO 31+00
5	STREET LIGHTING - CUL-DE-SAC TO 19+00

GENERAL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY OF DETROIT'S CITY ENGINEERING DIVISION, DEPARTMENT OF PUBLIC WORKS "STANDARD SPECIFICATIONS FOR PAVING AND RELATED CONSTRUCTION" AS WELL AS THEIR STANDARD PLANS FOR STREET AND ALLEY CONSTRUCTION. WORK NOT COVERED IN THESE DOCUMENTS SHALL BE IN ACCORDANCE WITH THE 2003 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND SPECIAL PROVISIONS. IN ADDITION, ALL WORK WITH SEWERS, DRAINAGE STRUCTURES, AND WATER LINES SHALL BE IN ACCORDANCE WITH THE STANDARD PLANS AND SPECIFICATIONS OF THE DETROIT DEPARTMENT OF WATER AND SEWERAGE (DWSD).

2. DRAINAGE DESIGN - CITY OF DETROIT 10 YEAR STORM EVENT. DESIGN SEWER VELOCITY MINIMUM IS 3 FPS AND THE MAXIMUM IS 7 FPS.

3. STORM DRAIN STUBS FOR EACH PARCEL HAVE BEEN PROVIDED FOR FUTURE CONNECTION BY PROPERTY OWNERS AS INDICATED ON DRAWING C1.20. TEMPORARY BASIN OUTLET STRUCTURES AND TEMPORARY DETENTION PONDS, WHICH WILL BE MAINTAINED BY THE RESPECTIVE PARCEL OWNERS UNTIL THEY ARE DEVELOPED, FOR PARCELS 9, 10, AND 12. EACH DEVELOPED PARCEL WILL BE REQUIRED TO DESIGN AND CONSTRUCT PERMANENT STORAGE FACILITIES TO RESTRICT AND CLEAN STORM EFFLUENT BEFORE DISCHARGE INTO THE COLLECTOR SEWER IN THE PUBLIC ROW. PERMITS WILL BE REQUIRED FROM THE CITY OF DETROIT'S DEPARTMENT OF WATER AND SEWERAGE (DWSD).

4. ALL NEW WATER LINES SHALL BE DUCTILE IRON, CLASS 56 WITH 8 MIL POLYETHYLENE WRAP AS PER DWSD STANDARDS; ALL NEW WATER LINES SHALL HAVE VITON (FKM) GASKETS; ALL NEW SEWER PIPE FOR THE COMBINED SEWER SHALL BE ASTM C-76, CLASS IV OR V (UNDER FUTURE RR SPURS); AND THE STORM WATER PIPING CONNECTION TO THE SCHROEDER OUTFALL SHALL BE WATER TIGHT/LEAK PROOF SMOOTH LINED, CORRUGATED, HIGH-DENSITY POLYETHYLENE (ENCASED IN CONCRETE UNDER RR SPURS).

5. FIRE HYDRANTS HAVE BEEN PLACED AT 300' NOMINAL SPACING ALONG THE ENTIRE NEW PUBLIC RIGHT OF WAY AND HAVE BEEN APPROVED BY THE CITY OF DETROIT'S FIRE MARSHALL.

3 WORKING DAYS
BEFORE YOU DIG CALL MISS DIG®
1-800-482-7171
For free location of public utility lines.
ALTERNATE NUMBER (810) MISS-DIG
COLOR CODES FOR UTILITY LOCATING:

Yellow	OIL & GAS	Blue	WATER
Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
		Pink	SURVEYING

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES - CALL MISS DIG

82757

6-03-04

DESIGN/BUILD SPRINGWELLS COURT
SOUTH OF JEFFERSON AVENUE

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

Tucker, Young, Jackson, Tull Inc.
Consulting Engineers
565 E. LARNED, SUITE #300
DETROIT, MI. 48226
(313) 963-0612/FAX (313) 963-2156

LOCAL AUTHORITY APPROVAL
CITY OF DETROIT
CITY ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS

APPROVED BY: _____ ENGINEER OF STREETS _____ DATE

APPROVED BY: _____ HEAD ENGINEER _____ DATE

APPROVED BY: _____ CITY ENGINEER _____ DATE

PREPARED UNDER SUPERVISION OF

ALAN J. SCHNEIDER
REGISTERED PROFESSIONAL ENGINEER

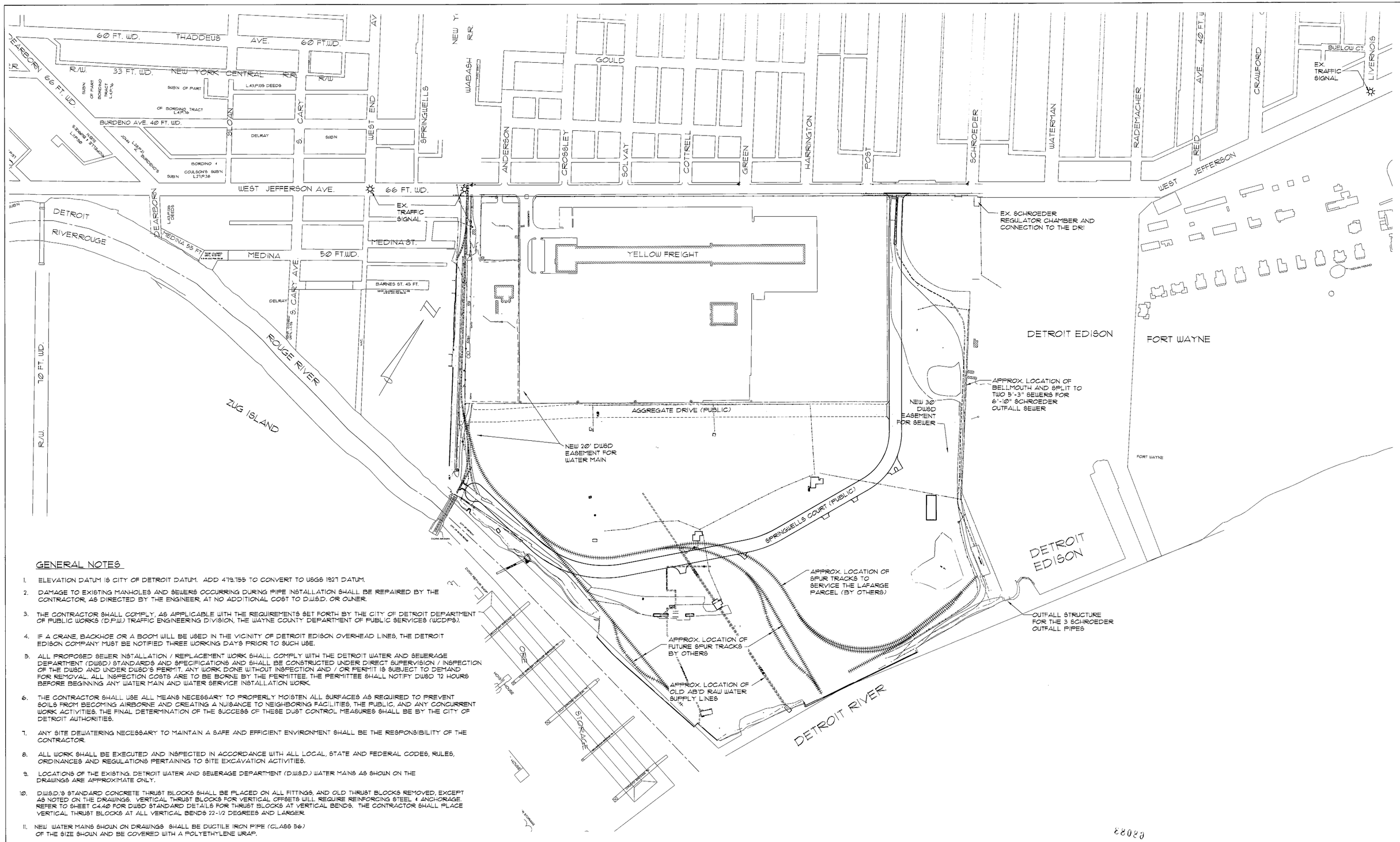
TUCKER, YOUNG, JACKSON, TULL INC.
ORGANIZATION

565 LARNED, SUITE 300
DETROIT, MICHIGAN 48226
ADDRESS

(SEAL)

SHEET NO. 1

2333-18



GENERAL NOTES

1. ELEVATION DATUM IS CITY OF DETROIT DATUM. ADD 479.755 TO CONVERT TO USGS 1927 DATUM.
2. DAMAGE TO EXISTING MANHOLES AND SEWERS OCCURRING DURING PIPE INSTALLATION SHALL BE REPAIRED BY THE CONTRACTOR, AS DIRECTED BY THE ENGINEER, AT NO ADDITIONAL COST TO D.W.S.D. OR OWNER.
3. THE CONTRACTOR SHALL COMPLY, AS APPLICABLE WITH THE REQUIREMENTS SET FORTH BY THE CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS (D.P.W.) TRAFFIC ENGINEERING DIVISION, THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES (WCDPS).
4. IF A CRANE, BACKHOE OR A BOOM WILL BE USED IN THE VICINITY OF DETROIT EDISON OVERHEAD LINES, THE DETROIT EDISON COMPANY MUST BE NOTIFIED THREE WORKING DAYS PRIOR TO SUCH USE.
5. ALL PROPOSED SEWER INSTALLATION / REPLACEMENT WORK SHALL COMPLY WITH THE DETROIT WATER AND SEWERAGE DEPARTMENT (DWSD) STANDARDS AND SPECIFICATIONS AND SHALL BE CONSTRUCTED UNDER DIRECT SUPERVISION / INSPECTION OF THE DWSD AND UNDER DWSD'S PERMIT. ANY WORK DONE WITHOUT INSPECTION AND / OR PERMIT IS SUBJECT TO DEMAND FOR REMOVAL. ALL INSPECTION COSTS ARE TO BE BORNE BY THE PERMITTEE. THE PERMITTEE SHALL NOTIFY DWSD 72 HOURS BEFORE BEGINNING ANY WATER MAIN AND WATER SERVICE INSTALLATION WORK.
6. THE CONTRACTOR SHALL USE ALL MEANS NECESSARY TO PROPERLY MOISTEN ALL SURFACES AS REQUIRED TO PREVENT SOILS FROM BECOMING AIRBORNE AND CREATING A NUISANCE TO NEIGHBORING FACILITIES, THE PUBLIC, AND ANY CONCURRENT WORK ACTIVITIES. THE FINAL DETERMINATION OF THE SUCCESS OF THESE DUST CONTROL MEASURES SHALL BE BY THE CITY OF DETROIT AUTHORITIES.
7. ANY SITE DEWATERING NECESSARY TO MAINTAIN A SAFE AND EFFICIENT ENVIRONMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
8. ALL WORK SHALL BE EXECUTED AND INSPECTED IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL CODES, RULES, ORDINANCES AND REGULATIONS PERTAINING TO SITE EXCAVATION ACTIVITIES.
9. LOCATIONS OF THE EXISTING, DETROIT WATER AND SEWERAGE DEPARTMENT (D.W.S.D.) WATER MAINS AS SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY.
10. D.W.S.D.'S STANDARD CONCRETE THRUST BLOCKS SHALL BE PLACED ON ALL FITTINGS, AND OLD THRUST BLOCKS REMOVED, EXCEPT AS NOTED ON THE DRAWINGS. VERTICAL THRUST BLOCKS FOR VERTICAL OFFSETS WILL REQUIRE REINFORCING STEEL & ANCHORAGE. REFER TO SHEET C4.40 FOR DWSD STANDARD DETAILS FOR THRUST BLOCKS AT VERTICAL BENDS. THE CONTRACTOR SHALL PLACE VERTICAL THRUST BLOCKS AT ALL VERTICAL BENDS 22-1/2 DEGREES AND LARGER.
11. NEW WATER MAINS SHOWN ON DRAWINGS SHALL BE DUCTILE IRON PIPE (CLASS 56) OF THE SIZE SHOWN AND BE COVERED WITH A POLYETHYLENE WRAP.
12. THE CONTRACTOR SHALL PROVIDE SHEETING AND BRACING TO PROTECT ADJACENT PAVEMENT, CURBS, SIDEWALKS, PIPELINES, CONDUITS, THE WORK AND PERSONNEL. THE CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR ANY AND ALL DAMAGES AND INJURIES RESULTING FROM A FAILURE TO PROVIDE ADEQUATE SHEETING AND BRACING.
13. ALL TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
14. COORDINATE ALL EXCAVATION AND ACTIVITIES IN THE VICINITY OF THE GAS PIPELINES WITH DOME PETROLEUM.

ISSUE	BY	CH'K'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 200'

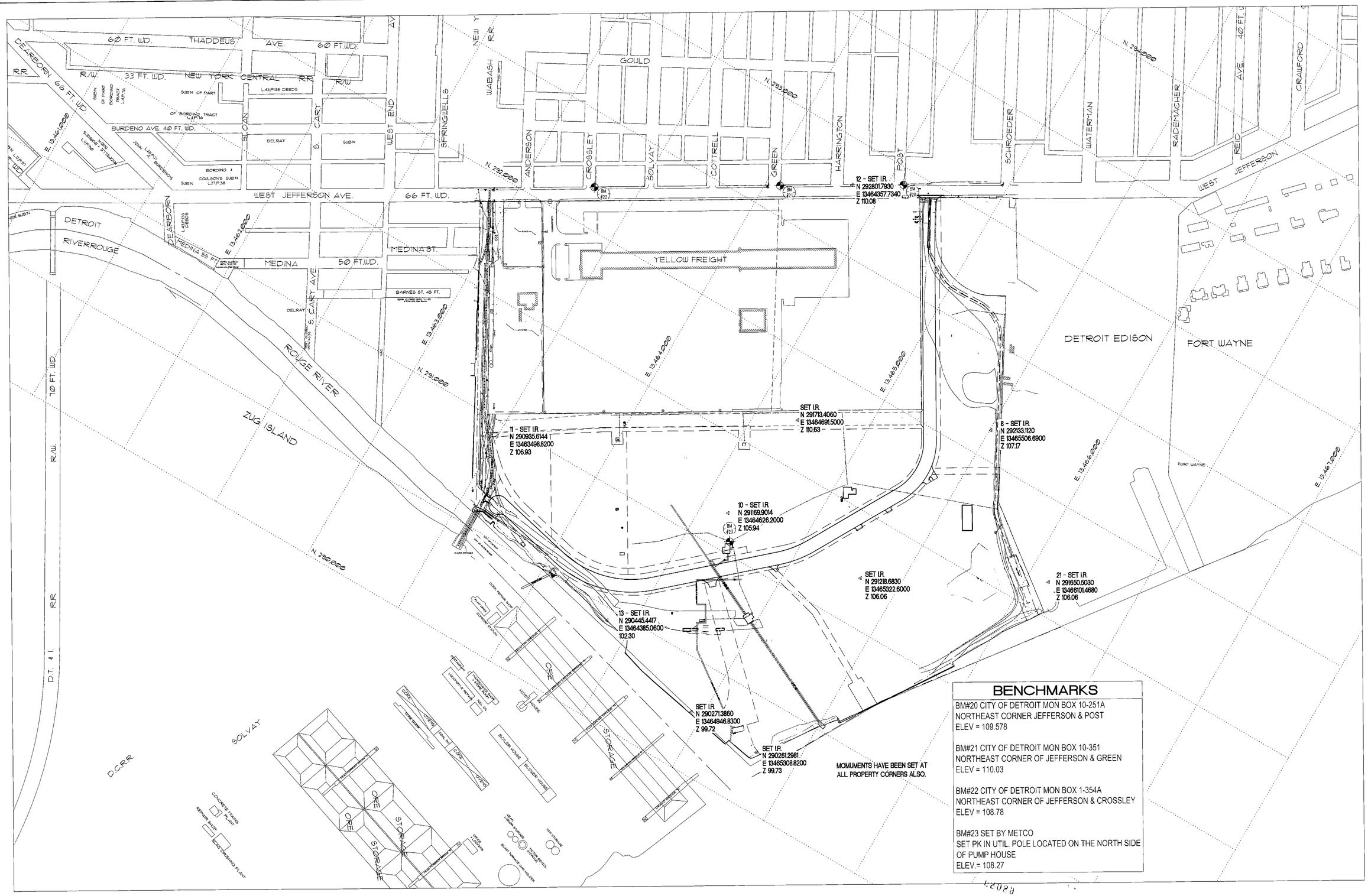
DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
969 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2156 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: GENERAL PLAN OF SITE
SHEET NO.: C 1.10

2.332 - 1.9



BENCHMARKS

BM#20 CITY OF DETROIT MON BOX 10-251A
NORTHEAST CORNER JEFFERSON & POST
ELEV = 109.578

BM#21 CITY OF DETROIT MON BOX 10-351
NORTHEAST CORNER OF JEFFERSON & GREEN
ELEV = 110.03

BM#22 CITY OF DETROIT MON BOX 1-354A
NORTHEAST CORNER OF JEFFERSON & CROSSLEY
ELEV = 108.78

BM#23 SET BY METCO
SET PK IN UTIL. POLE LOCATED ON THE NORTH SIDE OF PUMP HOUSE
ELEV.= 108.27

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 200'

DESIGNED BY
CHECKED BY
APPROVED BY

Iafrate
ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
869 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2186 WWW.TYJT.COM

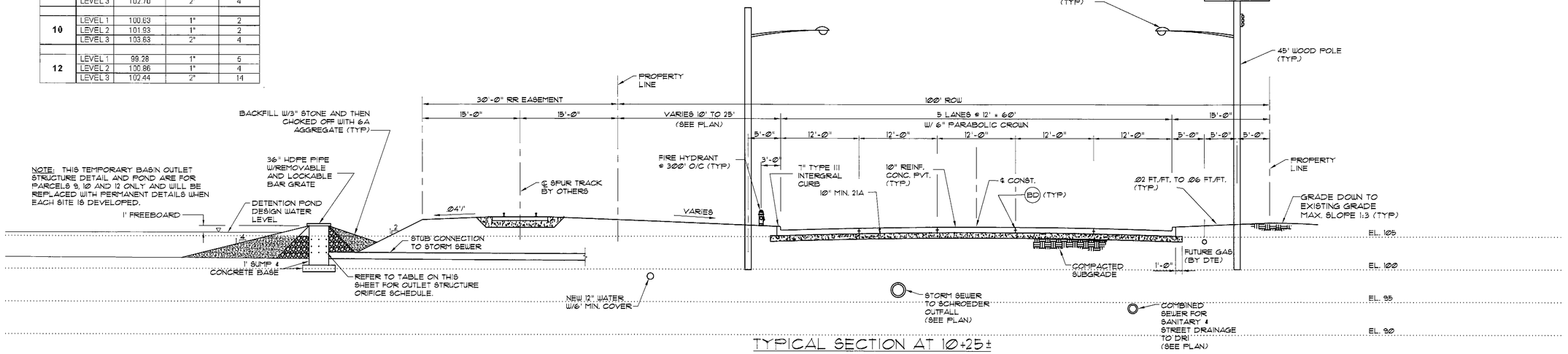
PROJECT: SPRINGWELLS COURT PAVING
SHEET TITLE: SURVEY CONTROL PLAN

DATE: 3-16-04
SHEET NO.: C 1.11

~~3232~~ - 20

TEMPORARY STORM WATER PONDS
SCHEDULE OF OUTLET STRUCTURES

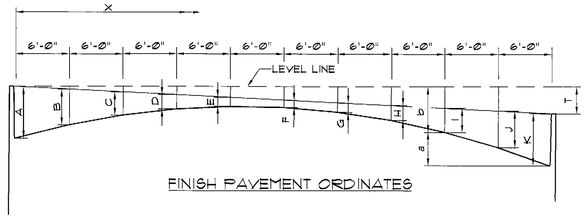
PARCEL		ORIFICE ELEVATION	ORIFICE DIAMETER	No. OF ORIFICES
9	LEVEL 1	100.20	1"	2
	LEVEL 2	101.60	1"	2
	LEVEL 3	102.70	2"	4
10	LEVEL 1	100.63	1"	2
	LEVEL 2	101.93	1"	2
	LEVEL 3	103.63	2"	4
12	LEVEL 1	99.28	1"	5
	LEVEL 2	100.86	1"	4
	LEVEL 3	102.44	2"	14



TYPICAL SECTION AT 10+25±

(SECTIONS 4+50 TO 37+28 SIMILAR - SEE PLAN)

SCALE: 1/8"=1'-0"



FINISH PAVEMENT ORDINATES

VERTICAL ORDINATES FOR PAVING SECTION (FEET)

T (CURB OFFSET)		0.0		0.1		0.2		0.3		0.4		0.5	
	X	a	b	a	b	a	b	a	b	a	b	a	b
A (0.583)	0'	0.000	0.583	0.100	0.583	0.200	0.583	0.300	0.583	0.400	0.583	0.500	0.583
B (0.403)	6'	0.180	0.403	0.270	0.413	0.360	0.423	0.450	0.433	0.540	0.443	0.630	0.453
C (0.263)	12'	0.320	0.263	0.400	0.283	0.480	0.303	0.560	0.323	0.640	0.343	0.720	0.363
D (0.163)	18'	0.420	0.163	0.490	0.193	0.560	0.223	0.630	0.253	0.700	0.283	0.770	0.313
E (0.103)	24'	0.480	0.103	0.540	0.143	0.600	0.183	0.660	0.223	0.720	0.263	0.780	0.303
F (0.083)	30'	0.500	0.083	0.550	0.133	0.600	0.183	0.650	0.233	0.700	0.283	0.750	0.333
G (0.103)	36'	0.480	0.103	0.520	0.163	0.560	0.223	0.600	0.283	0.640	0.343	0.680	0.403
H (0.163)	42'	0.420	0.163	0.450	0.233	0.480	0.303	0.510	0.373	0.540	0.443	0.570	0.513
I (0.263)	48'	0.320	0.263	0.340	0.343	0.360	0.423	0.380	0.503	0.400	0.583	0.420	0.663
J (0.403)	54'	0.180	0.403	0.190	0.493	0.200	0.583	0.210	0.673	0.220	0.763	0.230	0.853
K (0.583)	60'	0.000	0.583	0.000	0.683	0.000	0.783	0.000	0.883	0.000	0.983	0.000	1.083

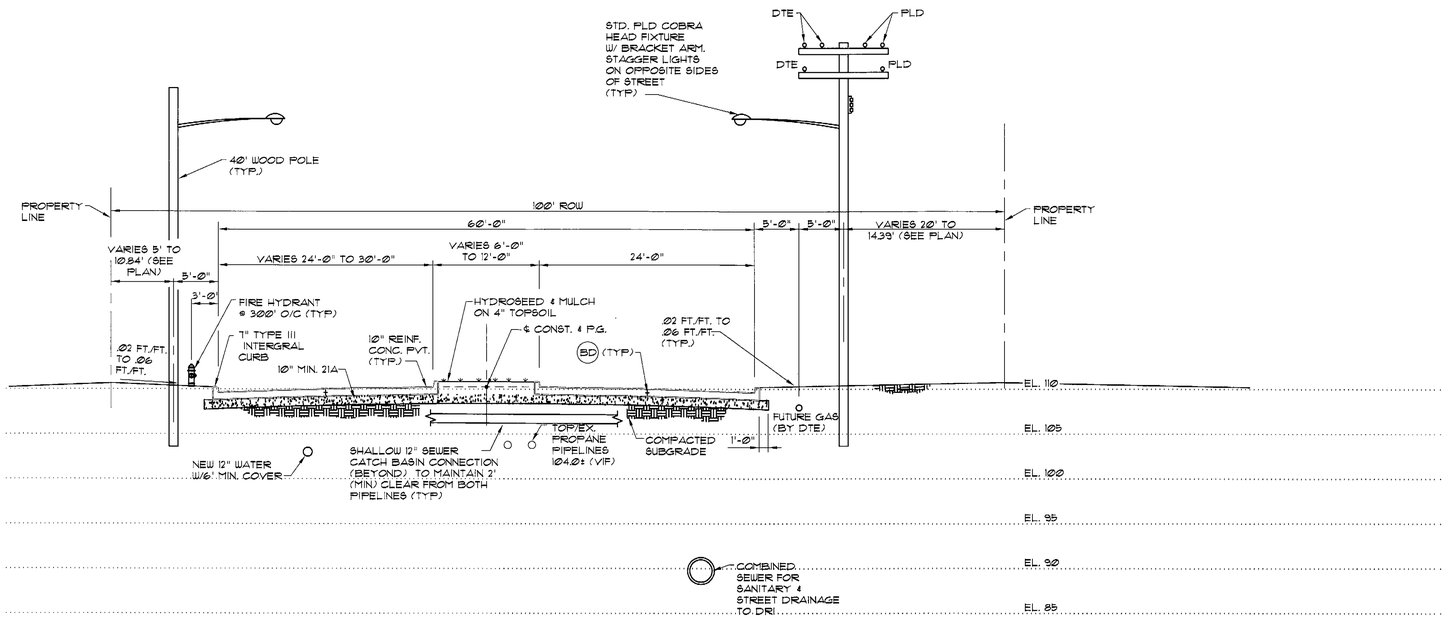
T (CURB OFFSET)		0.6		0.7		0.8		0.9		1.0	
	X	a	b	a	b	a	b	a	b	a	b
A (0.583)	0'	0.600	0.583	0.700	0.583	0.800	0.583	0.900	0.583	1.000	0.583
B (0.403)	6'	0.720	0.463	0.810	0.473	0.900	0.483	0.990	0.493	1.080	0.503
C (0.263)	12'	0.800	0.383	0.880	0.403	0.960	0.423	1.040	0.443	1.120	0.463
D (0.163)	18'	0.840	0.343	0.910	0.373	0.980	0.403	1.050	0.433	1.120	0.463
E (0.103)	24'	0.840	0.343	0.900	0.383	0.960	0.423	1.020	0.463	1.080	0.503
F (0.083)	30'	0.800	0.383	0.850	0.433	0.900	0.483	0.950	0.533	1.000	0.583
G (0.103)	36'	0.720	0.463	0.760	0.523	0.800	0.583	0.840	0.643	0.880	0.703
H (0.163)	42'	0.600	0.583	0.630	0.653	0.660	0.723	0.690	0.793	0.720	0.863
I (0.263)	48'	0.440	0.743	0.460	0.823	0.480	0.903	0.500	0.983	0.520	1.063
J (0.403)	54'	0.240	0.943	0.250	1.033	0.260	1.123	0.270	1.213	0.280	1.303
K (0.583)	60'	0.000	1.183	0.000	1.283	0.000	1.383	0.000	1.483	0.000	1.583

X = Distance from face of high curb

a = Height above low pavement gutter elevation

b = Difference between top of high curb and pavement elevation

6569)



TYPICAL CROSS SECTION AT 39+00±

(SECTIONS 37+28 TO 39+47 SIMILAR - SEE PLAN)

SCALE: 1/8"=1'-0"

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY

CHECKED BY

APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
969 E. LARNED SUITE 200 DETROIT, MICHIGAN 48226
(313) 963-6162 FAX (313) 963-2156 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING

DATE: 3-16-04

SHEET TITLE: TYPICAL CROSS SECTION

SHEET NO.: C1.30

2332-21

CURVE 4

R = 650'
DELTA = 2° 12' 49.6"
PC 37+74.31 N. 292,770.80 E. 13,464,793.10
CENTER 293,101.74 E. 13,465,352.35
PT 37+99.42 N. 292,792.66 E. 13,464,780.14

CURVE 2

R = 505'
DELTA = 18° 54' 52.8"
PC 18+59.95 N. 291,105.13 E. 13,464,940.16
CENTER 291,483.67 E. 13,464,605.90
PT 20+26.67 N. 291,233.92 E. 13,465,044.82

CURVE 3

R = 290'
DELTA = 60° 14' 44.9"
PC 25+10.14 N. 291,654.14 E. 13,465,283.93
CENTER 291,797.56 E. 13,13,465,031.87
PT 28+15.08 N. 291,845.20 E. 13,465,281.47

CURVE 1

R = 505'
DELTA = 54° 13' 24.0"
PC 1+73.40 N. 290,588.32 E. 13,464,037.98
CENTER 291,080.81, E. 13,464,149.68
PT 12+51.32 N.290,702.21, 13,464,483.94

ISSUE	BY	CH'KD	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8838 FAX

SCALE: 1" = 40'
0 10 20 40 80 120
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN 48091
(586) 756-1070

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
969 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-8612 FAX (313) 963-2186 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: ALIGNMENT PLAN
SHEET NO.: C1.50

2332-22

C8092

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2156 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: DPW STANDARD DETAILS
SHEET NO.: C4.20

2332-23

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY
CHECKED BY
APPROVED BY

Iafrate
ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
960 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-8612 FAX (313) 963-2156 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING

DATE: 3-16-04

SHEET TITLE: DPW SPECIAL DETAILS

SHEET NO.: C4.21

2332-24

City of Detroit
OFFICE OF THE CITY CLERK

Janice M. Winfrey
City Clerk

Vivian A. Hudson
Deputy City Clerk

DEPARTMENTAL REFERENCE COMMUNICATION

Friday, October 14, 2016

To: *The Department or Commission Listed Below*

From: *Janice M. Winfrey, Detroit City Clerk*

The following petition is herewith referred to you for report and recommendation to the City Council.

In accordance with that body's directive, kindly return the same with your report in duplicate within four (4) weeks.

DPW - CITY ENGINEERING DIVISION WATER & SEWERAGE DEPARTMENT
PLANNING AND DEVELOPMENT DEPARTMENT

1303 *United States Environmental Protection Agency Great Lakes National Program, request for temporary closure and permanent vacationing a portion of Springwells Court located at in Delray, Detroit.*

200 Coleman A. Young Municipal Center • Detroit, Michigan 48226-3400
(313) 224 3260 • Fax (313) 224-1466

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
GREAT LAKES NATIONAL PROGRAM OFFICE
SOUTHEASTERN MICHIGAN OFFICE
9311 GROH ROAD
GROSSE ILE, MI 48138-1697

27 September 2016

The Honorable City Council
ATTN: Office of the City Clerk
200 Coleman A. Young Municipal Center
Detroit, Michigan 48226

RE: Request for Temporary Closure and Permanent Vacationing of Portion of Springwells Court,

Dear Sirs & Mesdames:

We are writing this letter to request a hearing before the City Council to approve temporary closure and permanent vacationing of a portion of Springwells Court, located in Delray, Detroit, Michigan. Both the closure and vacationing are required as part of a major clean-up project on the Lower Rouge River Old Channel (LRROC) which will serve to improve the quality of Michigan's waters and benefit nearby communities. Additional details are provided in this letter and its attachments.

The U.S. Environmental Protection Agency (USEPA) and Honeywell Inc. have been working cooperatively under the Great Lakes Legacy Act (GLLA) to remediate coal tar contaminated sediment in the Lower Rouge River Old Channel (LRROC) that impairs natural resources. Dredging as part of the remedy necessitates building of a permanent bulkhead wall along the shoreline. Tiebacks for this wall in turn require closure of the terminal 500f ft of Springwells Court. Wall construction is set to start in early 2017 to allow dredging in 2018. USEPA and Honeywell have worked closely with the Economic Development Corporation (EDC) of the City of Detroit, who owns the properties accessed by the court, and who is in favor of the project. Both the current project design and the long term interests of the EDC would benefit from a permanent vacationing of a portion of Springwells Court, located in Delray, Detroit, Michigan. Therefore, we are submitting a package to request/application for grant of both temporary closure and permanent vacationing. We are requesting temporary closure to allow work to begin by January of next year and to occur regardless of final decisions regarding Springwells Court. We are requesting permanent vacationing because this will produce the greatest benefits for the clean-up project as well as local landowners.

Enclosed are a fact sheet describing the project and the engineering plan sets depicting the proposed changes to Springwells Court. Should you have any questions, please feel free to contact me, Rose Ellison at (734) 692-7689 or provide emailed comments to Ellison.Rosanne@epa.gov.

Sincerely,

Rose Ellison
Great Lakes National Program Office
U.S. Environmental Protection Agency

Enclosures: Fact Sheet
Drawing Set

CC: Will Tamminga, EDC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
GREAT LAKES NATIONAL PROGRAM OFFICE
SOUTHEASTERN MICHIGAN OFFICE
9311 GROH ROAD
GROSSE ILE, MI 48138-1697

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Sincerely,

Rose Ellison
Great Lakes National Program Office
U.S. Environmental Protection Agency

Enclosures: Fact Sheet
Drawing Set

CC: Will Tamminga, EDC

FACT SHEET
LOWER ROUGE RIVER OLD CHANNEL
SEDIMENT REMEDIATION PROJECT
SEPTEMBER 2016

Introduction and Overview

The United States Environmental Protection Agency Great Lakes National Program Office (GLNPO) is working throughout the Great Lakes region to implement remediation and restoration projects under the Great Lakes Legacy Act. These projects focus on addressing beneficial use impairments at known areas of concern (AOCs).

As part of a collaborative agreement, GLNPO has worked with Honeywell International Inc. (the non-federal sponsor; Honeywell), to develop a plan to address sediment contamination in the Lower Rouge River Old Channel (LRROC), which is part of the Rouge River AOC. The LRROC contains sediments contaminated with multiple constituents of concern, including polycyclic aromatic hydrocarbons (PAHs) and non-aqueous phase liquid (NAPL).

Project Purpose and Need

The purpose of the LRROC Sediment Remediation Project (the Project) is to address contaminated sediment within the LRROC and support the eventual de-listing of the Rouge River AOC. The presence of PAHs and NAPL is a major contributor to beneficial use impairments within the Project area, which include:

- Loss of Fish and Wildlife Habitat
- Degradation of benthos
- Restriction on dredging activities
- Restrictions on fish and wildlife consumption
- Fish tumors or other deformities.

Site Setting

The Project is located in Detroit, Wayne County, Michigan, adjacent to Zug Island. The LRROC flows through a highly industrialized area that was first developed in the early 1800s and has been subjected to heavy growth and development periods followed by industrial decline. A history of multiple industrial discharges, stormwater outfalls, combined sewer overflows, and non-point pollution sources culminated in PAHs in sediment. The LRROC is maintained as an active channel for industrial and commercial shipping traffic. Only maintenance dredging has occurred within the project area; no remedial actions have been performed.

Overview of Project Components

Based on an engineering feasibility study and the results of extensive pre-design investigation studies, the remedial design concept for the LRROC has been advanced and includes the following key components:

- **Dredging:** Dredging of approximately 77,000 cubic yards (CY) from 10 acres to remove sediments with PAH and NAPL levels above remedial goals. Dredging will be completed using an environmental (e.g. closed/sealed) bucket. Dredging will be conducted from a barge surrounded by silt curtains to limit suspended sediment movement. Dredging will be performed with consideration of surface water quality during remediation; monitoring will be performed to maintain water quality within permitted limits. Sediment dredged as part of the Project is expected to be placed in the United States Army Corps of Engineers (USACE) Point Mouillee Confined

Disposal Facility (CDF). The distance from the LRROC to the CDF is approximately 22 miles. No barge overflow of water or sediments may occur at any time—during excavation, navigation, or placement at the CDF.

- **Capping:** Subaqueous capping of about 1 acre to limit exposures to materials that are difficult to dredge due to limitations associated with a nearby water intake, shoreline/structural stability, or material depth. The aggregate cap will consist of a bulk sand/organoclay mixture for chemical isolation, overlain by a granular/gravel filter layer to prevent piping, overlain by an armor layer consisting of a cobble/boulder material. Surface water quality will also be considered during capping operations.
- **Temporary Shoreline Stabilization:** In some areas, dredging is planned for areas on or adjacent to the toe of the channel side slopes or in proximity to existing structures which will require temporary stabilization. Four areas targeted for dredging will require temporary stabilization using sheet pile and backfill. Sheet pile will be driven to a depth of at least 20 feet below sediment surface with approximately 30 feet remaining above sediment surface. After dredging, the area downslope of the temporary shoring will be backfilled to preserve the stability of the channel side slopes and shoreline. After backfilling, the sheetpile will be removed.
- **Permanent Shoreline Stabilization:** In some areas along the mainland side of the LRROC, the existing slopes are very steep. To achieve a stable slope after dredging, temporary shoreline stabilization would require large amounts of backfill encroaching into the navigation channel. Temporary shoreline stabilization is not feasible in these areas. Therefore, approximately 2,500 linear feet (LF) of shoreline will be permanently stabilized via installation of a bulkhead wall with tie-backs/deadmen to address shoreline stability in areas of moderate to deep dredging. The wall will be continuous with the exception of several "windows" or openings in the sheet pile wall which will be included to allow the passage of active underground utilities and the Zug Island Bridge that cross the river.
- **Staging, Dredged Material Handling & Disposal:** Part of the 11 acre Honeywell property north of the river will be used as a staging area. Materials from demolition of existing structures and other debris will be removed to facilitate permanent sheet pile wall installation and will be transported from the Honeywell property to a landfill. There will be a containment area in the staging area where sediment and washwater from the operation can be safely collected and properly disposed of. To facilitate the removal of sediments, debris, including large debris such as abandoned cars and wood pilings, require removal. These items will be removed, placed into a debris barge, and transferred to a staging area at the CDF for separation, decontamination, and off-site upland disposal.
- **Habitat Restoration:** In addition to the benefits gained from remediation, the project incorporates habitat restoration for fish and benthos in the form of substrate incorporated into capping and cover designs where feasible.
- **Permitting, Stakeholder Coordination, and Sustainability:** A key component of the design is obtaining permits. These permits give state and federal agencies and the community the opportunity to establish requirements for the project to ensure it complies with natural and cultural resource laws. Because the work occurs in a waterbody and floodplain, a Joint Permit Application has been submitted to the Michigan Department of Environmental Quality (MDEQ) and U.S. Army Corps of Engineers (USACE). MDEQ has issued the public notice for their permitting process and it is expected that USACE will issue public notice in early Fall 2016. Additional municipal and county permit applications are being submitted concurrently. In association with permitting, the design team is coordinating with local landowners and stakeholders to obtain access to shorelines and build awareness of the project.

Schedule

Permanent bulkhead wall construction is expected to begin as early as the beginning of 2017 and take approximately 13 months. The remedial contractor will mobilize to the site in early 2018 and begin remedial construction activities (i.e., dredging, material handling and disposal, and capping), which are anticipated to take approximately 9 months to complete.

Relevance to Springwells Court

The design of the permanent bulkhead wall includes approximately 900 feet of shoreline immediately adjacent to Springwells Court, a paved road owned by Wayne County. The bulkhead requires tiebacks of up to 125 feet in length which connect to an anchor wall that would be located within the limits of Springwells Court. Construction of the tiebacks and anchor wall require closure of the length of Springwells Court along the shoreline. The project sponsors are seeking to obtain temporary closure and permanent vacationing of this portion of the road. Planning for this vacationing has been conducted in close coordination with the adjacent landowner, the Detroit Economic Growth Corporation (DEGC). DEGC supports the road closure and vacationing as well as the construction of the bulkhead, which is consistent with long term plans for the property.

Contact Us

For further information, please contact Rose Ellison, U.S. Environmental Protection Agency, by phone at (734) 692-7689 or by email at ellison.rosanne@epa.gov.

SUMMARY OF ENCLOSED DRAWINGS

G-001:	Cover Sheet – Lists all drawings in Permanent Sheetpile Wall drawing set.
G-002:	Legend and Abbreviations – Summarizes all abbreviations and symbols on drawing set.
G-003:	General Notes – Provides a summary of construction notes for Permanent Sheetpile Wall.
C-101	Overall Site Plan – Provides an overall orientation of site plans. Reader should focus on former Coke site which references Drawings C-102, C-106, C-112, C-115, C-302, and S-101.
C-102:	Existing Conditions Plan (Coke) – Provides existing conditions, showing structures, site features, utilities, property lines, right of ways, and ground surface topography on Former Coke site.
C-106:	Site Demolition Plan (Coke) – Summarizes structures and utilities to be demolished, as well as utilities to be protected, on Former Coke site.
C-109:	Pre-trenching Plan (Coke) – Provides locations and orientation of pre-trenches to be performed to allow ease of installation of permanent sheetpile wall on Former Coke site.
C-112:	Excavation Plan (Coke) – Provides excavation depths and locations to allow installation of tie-backs and walers for permanent sheetpile wall on Former Coke site.
C-115:	Final Grading Plan (Coke) – Provides final grading after installation of permanent sheetpile wall on Former Coke site. This plan shows orientation and location of new cul-de-sac for Springwells Court.
C-201:	Interpretive Subsurface Profile Along Permanent Sheetpile Wall Alignment (Coke) – provides subsurface conditions, depth of sheetpile wall, and dredge depths immediately adjacent to wall and near center of channel on Former Coke site.
C-204:	Interpretive Subsurface Profile Along Deadmen Alignment (Coke) – provides subsurface conditions, and depth of deadman wall on Former Coke site.
C-301:	Erosion and Sedimentation Control Notes – Provides a summary of erosion and sedimentation control notes for Permanent Sheetpile Wall.
C-302:	Erosion and Sedimentation Control Plan (Coke) – Provides erosion and sedimentation control measures on Former Coke site.
C-305:	Erosion and Sedimentation Control Details – Provides erosion and sedimentation control details for permanent sheetpile wall constructions.
C-401-404:	Cross Sections – Provides cross sections across the permanent sheetpile wall on the Former Coke site.
C-502:	Civil Details 2 – Provides construction details; focus should be on Detail R which shows a cross section through the rebuild section of Springwells Court.
S-001:	Structural Notes – Provides a summary of construction structural notes for Permanent Sheetpile Wall.
S-101	Permanent Sheetpile Wall and Anchor System Plan – Provides structural layout of sheetpile wall, deadman walls, tieback anchors and walers on Former Coke site.
S-501-503:	Structural Details 1 through 3 – Provides structural connection details for the sheetpile wall, deadman wall, walers, and tiebacks for the permanent sheetpile wall.

PROVISIONS FOR TEMPORARY CLOSING

Detroit Water and Sewerage (DWSD) agrees to the proposed temporary closing of the right-of-way subject to fulfilling the following provisions:

1. Detroit Water and Sewerage Department forces shall have free and easy access to the water main and sewer facilities at all times to permit proper operation, maintenance and if required, alteration or repair of the water main and/or sewer facilities. Free and easy access shall mean that no structures or storage of materials will be allowed upon the temporarily closed street to hinder the movement of maintenance equipment.

2. Where a fence is placed across the temporarily closed portion of a street/alley, then a gate must be installed to permit access for DWSD forces. The gate shall remain unlocked 24 hours a day, unless a guard is stationed near the gate to allow the Detroit Water and Sewerage Department ingress and egress at any time to and from the temporarily closed street/alley. The minimum dimensions of the gate or gates shall provide 15 foot vertical and 13 foot horizontal clearances for freedom of DWSD equipment movement.

3. Should the water main and/or sewer facilities be broken or damaged as a result of any action on the part of the petitioner or assigns, then in such event the petitioner or assigns shall be liable for all costs incident to the repair of such broken or damaged water main and appurtenances, and the petitioner waives all claims for damages.

These Provisions for Temporary Closing must be made a part of the City Council's Resolution granting the temporary closing of the subject right-of-way.

06/27/2014

Detroit Water & Sewerage Department
Provisions for Relocation Due to Vacation for Petition No 1303

Provided that the petitioner shall design and construct proposed sewers and water mains and to make the connections to the existing public sewers and water mains as required by the Detroit Water and Sewerage Department (DWSD) prior to construction of the proposed sewers and water mains,

Provided that the plans for the sewers and water mains shall be prepared by a registered engineer; and further

Provided that DWSD be and is hereby authorized to review the drawings for the proposed sewers and water mains and to issue permits for the construction of the sewers and water mains, and further

Provided that the entire work is to be performed in accordance with plans and specifications approved by DWSD and constructed under the inspection and approval of DWSD; and further

Provided that the entire cost of the proposed sewers and water mains construction, including inspection, survey and engineering shall be borne by the petitioner; and further

Provided that the petitioner shall deposit with DWSD, in advance of engineering, inspection and survey, such amounts as the department deems necessary to cover the costs of these services; and further

Provided that the petitioner shall grant to the City a satisfactory easement for the sewers and water mains; and further

Provided that the Board of Water Commissioners shall accept and execute the easement grant on behalf of the City; and further

Provided, that the petitioner shall provide DWSD with as –built drawings on the proposed sewers and water mains; and further

Provided that the petitioner shall provide a one (1) year warranty for the proposed sewers and water mains; and further

Provided that upon satisfactory completion, the sewers and water mains shall become City property and become part of the City system. And any existing sewers that were abandoned shall belong to the petitioner and will no longer be the responsibility of the City.

06/30/14

DELRAY MEMORIAL FIELD

LEIGH

LYON

KELLER

THADDEUS

COPLAND

COPLAND SERVICE DR.

33' N.Y.C.R.R. R.OF W.

T.S.&V.

8"S.V.

8"D.I.

PLUGGED

15-G

EDWIN

EDWIN S. DR.

D.I. PIPE

15' D.W.S.D. RAW WATER TUNNEL TO FORD PLANT

TUNNEL 33'

DEARBORN

N.Y.C.R.R. R.OF W.

SLOAN

BURDENO

CARY

JEFFERSON 66'

(VAC.) WHITE ST.

PULASKI (VAC.)

(VAC.) PORTLAND

(VAC.) COPLAND

PETERSON (VAC.)

VAC. HOME ST.

INTAKE SHAFT TO FORD PLANT

RIVER ROUGE

DETROIT RIVER

CITY OF RIVER ROUGE

ZUG ISLAND

CENTRAL DISTRICT

City Limit

16-G

DILL PL.

YALE

VANDERBILT

9' PUBLIC ALLEY

Det. Edison Co.

50' MEDINA

BARNES

TEMP CLOSED

NOTE.
CROSS SECTION JEFFERSON ST.
Sheet Piling Placed in Jefferson
From D.T.&I. R.R. Ties to 310' East
Oct. 28, 1937 Sec. Not to Scale

North St. Line Detroit Edison Conduit

South St. Line Hand Rail

66'-0"

6" Gas
4" Gas

Mich. Bell Tel. Conduit To be Relocated

42" Water Main Sand Fill
Of 10" Water "

2"ϕ Tierods - Upset Ends 15'0.C.
Encased in Conc. 12" Sq. Turnbuckle

Drain

D.T.&I.R.R.

Steel Sheet Piling 310'x10'

16' Dia.

Steel Sheet Piling 310'x60'

Detroit River Interceptor Sec. 12

WEST JEFFERSON AVE
DETROIT RIVER
RIVER ROUGE
ROUGE
DEARBORN
DIVERSION CHAMBER
REGULATOR (R3-C-31-50)
SHAFT 9" CYL 2 RB 1929 DWG*1077
REPAIR CONC COLLAR TO OUTLET MEDINA *1451 1931
15" CR 1930 REBUILT *555
18" CR MEDINA *3707 - 1922
SEE DWG IN DELRAY FILE
SEE DELRAY FILE
10" PIPE
18" OVERFLOW
12" VIT
8" *1688
S GARY AVE
2-3'-0" CY'L'S
TEMP CLOSED
BASE MAP
ISLAND
LOT 1 12" #1687
5'-9"
JEFFERSON
16'-0" CYL
9.9'
12" VIT PIPE
9.7'
REGULATOR DWG*R-3-C-31-50
5'-0" CYL
CITY OF RIVER ROUGE
CITY LINE
P. C. 11
P. C. 718
P. C. 67
15" PIPE(DEAD)
BULKHEAD
6.65'
12" VIT PIPE 1947 SEE DRWG *1688-A
15" VIT PIPE 1947 DRWG *1688A
DPW 1938
BARNES ST
MEDINA ST
JACKSON
SUB'N
ASS'D R/W FOR SEWER L537
SEE DETROIT RIVER INTERCEPTOR DRWG*1593 1939
SEE DETROIT RIVER INTERCEPTOR DRWG*1588 DRI II
REGULATOR INTO DIV CH 1949 DRWG*1764
24" CI PIPE
PSF 12" CONN 1948
SOLVAY PROCESS CO
FOR DETAILS OF PRV SEWER SEE DWG*1361
24" PIPE
12" PIPE
BOT ELEV 96.71' WATER 97.38'
BOT ELEV 96.34' WATER 97.00'
D.C.R.R.
36" CONC
42" EGG
36" CONC
24" CONC
FOR DETAIL OF PRV SEWERS SEE DWG *1361
TO SCHROEDER AVE SEWER
EL 94.66' WATER 95.8'
5'-0" EGG
CITY OF DETROIT
SEMET SOLVAY CO.
D.C.R.R. BRIDGES
DOCK REPAIR SHOP
PLANT OFFICE
COMFORT STATION
WELLMAN BRIDGE *2
OLD BROWN BRIDGE *3
OLD BROWN BRIDGE *4
NEW BROWN BRIDGE *5
DRAVO BRIDGE *6
MEAD-MORRISON BRIDGE *7
MEAD-MORRISON BRIDGE *8
RESTAURANT
MAINTENANCE SHOP & STORE ROOM
HOIST HOUSE
LOCOMOTIVE FUEL OIL REPAIR
COKE OVENS
COKE WHARF
COAL BIN
COKE OVENS
BOILER HOUSE
BLOWER HOUSE
ORE
STORAGE
GREAT LAKES STEEL CORP.
CONCRETE MIXING PLANT
REPAIR SHOP
SLAG CRUSHING PLANT
WEAK LIQUOR STORAGE
MOTOR BENZOL STORAGE
TAR STORAGE
BLAST FURNACE GAS HOLDER
OFFICE & LOCKERS
ZUG ISLAND
DETROIT RIVER
285.00
S - 29° - 29' - 30"W
3233.00
$$$$$$SYTIME$$$$$$ DCN&SPECIFICATION$$$$$$

ANDERSON
CROSSLEY
SOLVAY
COTTRELL
GREEN
HARRINGTON
POST
SCHROEDER
WEST JEFFERSON AVENUE
EX. 42" WATER
EX. DRI
MEDINA
BARNES
TEMP. CLOSED UNTIL 7-1-99
6-9-94 J.D.C. PGS. 158-59
VAC
PAVED
UNPAVED
36 in ST
24 in ST
42 in egg ST
12 in W
PART OF PRIVATE CLAIM 67
AMENDED PLAT OF
PART OF LOTS 13-19
"WILLIAM DWIGHT'S SUBDIVISION"
20
SCALED LOCATION OF HYDRANT ON UNMETERED 12" WATER MAIN FROM DWSD SECTION MAP WHICH IS CENTERED IN ONE OF SEVERAL PRIVATE UTILITY EASEMENTS ON THIS SITE.
EX. PRIVATE EASEMENTS FOR PRIVATE WATER AND SEWER - DETAILS UNKNOWN
NEW 20' DWSD EASEMENT FOR 12" LOOPED WATER MAIN CONNECTION TO 42" WATER MAIN IN JEFFERSON.
VERY APPROXIMATE LOCATION OF OLD SOLVAY SEWER CONNECTION TO THE SCHROEDER OUTFALL
EXISTING SCHROEDER REGULATOR CHAMBER
DETROIT EDISON
E. 13465.000
N. 293.000
N. 292.500
35+00
30+00
PARCEL 1
AMENDED PL
OF LOT
"CRAWFORD'S
102
APPROX. LOCATION OF BELLMOUTH AND SPLIT TO TWO 5'3" SEWERS FOR 6'-10" SCHROEDER OUTFALL SEWER
STUB FOR FUTURE PARCEL 1 STORM CONNECTION - 9.6 cfs MAXIMUM
NEW 30' SEWER EASEMENT
30' EGRESS EASEMENT
MAX. STORM FLOW, FROM A 10 YEAR STORM EVENT, TO THE SCHROEDER OUTFALL IS 63 cfs
NEW 20' DWSD EASEMENT FOR WATER MAIN
APPROXIMATE LOCATION OF OLD SOLVAY 36 INCH SEWER OUTFALL
APPROXIMATE LOCATION OF OLD SOLVAY 60 INCH EGG SEWER OUTFALL
PARCEL 8
PARCEL 9
EX. 30' EASEMENT FOR RR SPUR TRACK
PARCEL 10
TEMP. DETENTION POND
STUB 4 TEMP. BASIN OUTLET FOR FUTURE PARCEL 9 STORM CONNECTION - 2.0 cfs MAXIMUM
PARCEL 7
PARCEL 12
STUB 4 TEMP. BASIN OUTLET FOR FUTURE PARCEL 12 STORM CONNECTION - 16.4 cfs MAXIMUM
TEMP. DETENTION POND
STUB FOR FUTURE PARCEL 2 STORM CONNECTION - 17.3 cfs MAXIMUM
PARCEL 2
CITY OF DETROIT
CITY OF RIVER ROUGE
D.C.R.R. BRIDGES
TEMP. DETENTION POND
STUB 4 TEMP. BASIN OUTLET FOR FUTURE PARCEL 10 STORM CONNECTION - 5.12 cfs MAXIMUM
10+00
15+00
20+00
25+00
N. 291.000
E. 13464.000
E. 13465.000
STUB FOR FUTURE PARCEL 6 STORM CONNECTION - 6.0 cfs MAXIMUM
STUB FOR FUTURE PARCEL 5 STORM CONNECTION - 3.0 cfs MAXIMUM
STUB FOR FUTURE PARCEL 4 STORM CONNECTION - 7.5 cfs MAXIMUM
PARCEL 6
PARCEL 5
PARCEL 4
PARCEL 3
FUTURE SPUR TRACK (BY OTHERS)
FUTURE SPUR TRACKS (BY OTHERS)
SPUR TRACKS (BY OTHERS) TO SERVICE LAFARGE PARCEL
AB'D RAW WATER INTAKE LINES
OUTFALL STRUCTURE FOR 3 SCHROEDER OUTFALL PIPES
DOCK REPAIR SHOP
PLANT OFFICE
COMFORT STATION
HOUSE
6807Ø

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Kuhner	DATE 3-18-04
HEAD ENGR-DES. Glenn Bush	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO.	L&S*
MDEQ	D JOB*
MDPH	DRWG/REF* SEWER
R&U*	WATER

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG®
1-800-482-7171
For the location of public utility lines.
ALTERNATE NUMBER (810) MISS-DIG
COLOR CODES FOR UTILITY LOCATING

Yellow	OIL & GAS	Blue	WATER
Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
		Pink	SURVEYING

IF YOU ARE GOING TO DIG FROM CHANGED SIGN - CALL MISS DIG

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 100'
0 50 100 200 300
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
369 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2186 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: SITE PLAN
SHEET NO.: C 1.20

2332-1

CROSSLET

YELLOW FREIGHT

EX. GATE BOXES INSTALLED IN 1976

REMOVE, CUT/CAP EX. PRIVATE HYD. & RESTORE PVT.

EX. 10" METERED PRIVATE WATER MAIN (CIRCA 1896)

EX. 12" UNMETERED WATER MAIN (CIRCA 1896)

APPROX. LOCATION OF OLD SOLVAY SEWER OUTFALL EXACT LOCATION AND ELEVATION ARE UNKNOWN.

PRIVATE WATER LINE - DESTINATION UNKNOWN

SEE DETAIL 'A'

NEW DWSD 20' EASEMENT FOR WATER MAIN

NEW 12" WATER MAIN IN 20' EASEMENT, REMOVE & REPLACE PAVEMENT AS REQ.

SCALED LOCATION OF HYDRANT ON UNMETERED 12" WATER MAIN FROM DWSD SECTION MAP - COULD NOT FIND IN FIELD

N. 291,148.90
E. 13,463,645.32

45° BEND 410+64.49
N. 291,129.45
E. 13,463,630.17

12" G.V. & W. 410+92.03

T&4V - SEE C4.40 FOR DETAILS 400+03±
N. 292,043.6±
E. 13,463,111.5±

2-NEW FIRE HYDRANTS DIRECTLY OPPOSITE THE EXISTING HYDRANTS ON YELLOW FREIGHT. SEE DETAILS B & C (typ)

DETECTOR CHECK SEE DETAIL 'C'

APPROX. LOCATION OF OLD SOLVAY SEWER OUTFALL - EXACT LOCATION AND ELEVATION ARE UNKNOWN.

APPROX. LOCATION OF OLD SOLVAY SEWER OUTFALL - EXACT LOCATION AND ELEVATION ARE UNKNOWN.

ANDERSON

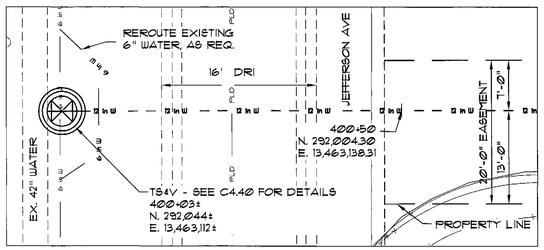
WEST JEFFERSON AVE. (66 FT. WIDE)

FUTURE GRAVEL ROAD

AGGREGATE DRIVE (PUBLIC) VARIABLE WIDTH

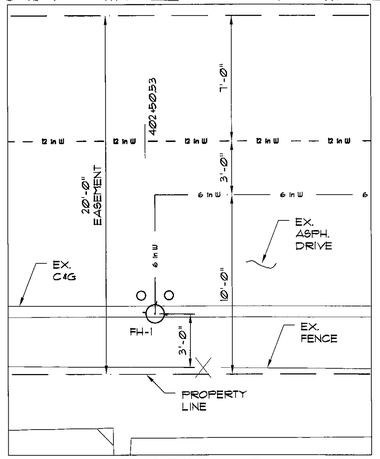
NEW 20' DWSD EASEMENT FOR WATER MAIN - SEE SHEET C2.11

SEE SHEET C2.11 FOR LOCATIONS



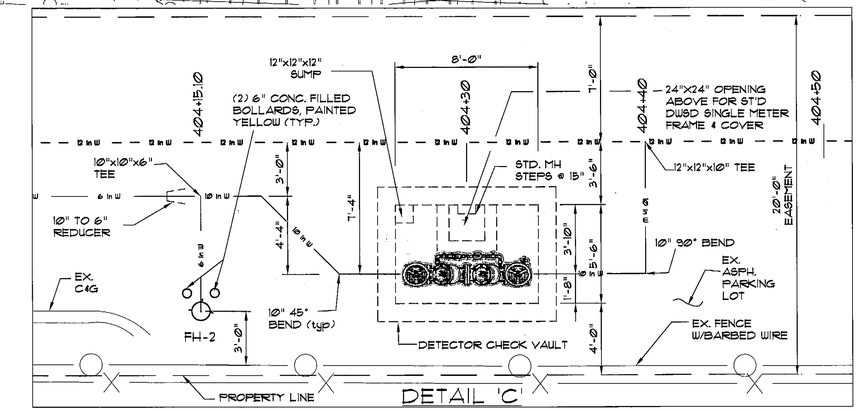
DETAIL 'A'

1"=10'-0"



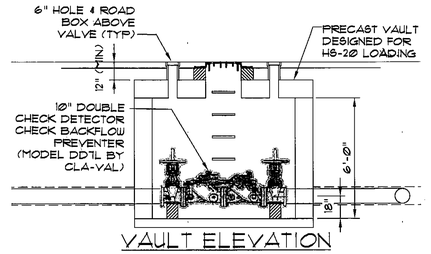
DETAIL 'B'

1/4"=1'-0"



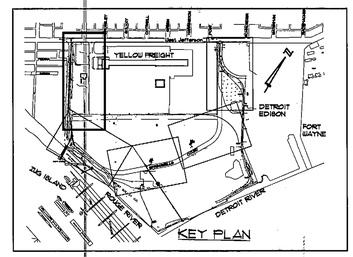
DETAIL 'C'

1/4"=1'-0"



VAULT ELEVATION

1/4"=1'-0"



68071

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Hudson	DATE 3-18-04
HEAD ENGR-DES. Grant Ault	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO.	L8#
MDEQ	D JOB#
MDPH	
R/W#	DRWG/REF# SEWER
	WATER

3 WORKING DAYS
BEFORE YOU DIG CALL MISS DIG®
1-800-482-7171
For free location of public utility lines.
ALTERNATE NUMBER (800) MISS-DIG
COLOR CODES FOR UTILITY LOCATING:

Yellow	OIL & GAS	Blue	WATER
Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
		Pink	SURVEYING

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES - CALL MISS DIG

ISSUE	BY	CHK'D	APPR'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 40'
0 10 20 40 80 120
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2196 UULLTY.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: UTILITY PLAN - YELLOW FREIGHT PROP.
SHEET NO.: C2.10

2332-2

PARCEL 8

PARCEL 9

PARCEL 10

PARCEL 7

KEY PLAN

11.25° BEND 413+74.97
N. 290,930.60
E. 13,463,493.02

11.25° BEND 413+87.18
N. 290,920.39
E. 13,463,500.14

NEW 20' DWSD EASEMENT FOR WATER MAIN

APPROXIMATE LOCATION OF OLD SOLVAY 36" OUTFALL SEWER

45° BEND 415+51.64
N. 290,808.14
E. 13,463,619.94

48 LF CASING FOR WATER MAIN UNDER TRACK SPUR

45° BEND 416+05.44
N. 290,754.73
E. 13,463,616.50

RAIL SPUR (BY OTHERS)

PT 445'± R. CURVE
N. 290,687.73
E. 13,463,780.52
417+55.44

TEMPORARY STORM WATER DETENTION BASIN. EXCAVATE SIDESLOPES AT 1:6 MAXIMUM. INSTALL TEMPORARY OUTLET STRUCTURE TO DETAIL ON SHEET C1.20. GRADE PARCEL TOWARDS BASIN FOR POSITIVE DRAINAGE - TYPICAL.

8" STUB 112LF @ 1.0% FOR FUTURE PARCEL 9 SANITARY CONNECTION
5+50 84.5 L. - I.E. 100.50

12" STUB @0.35%, ¢ BASIN OUTLET FOR FUTURE PARCEL 9 STORM CONNECTION
5+82.5 99.0' L.
I.E. 101.20

ENCASE STORM ¢ SAN. PIPES UNDER RR SPUR (TYP)

TEMPORARY STORM WATER DETENTION BASIN. EXCAVATE SIDESLOPES AT 1:6 MAXIMUM. INSTALL TEMPORARY OUTLET STRUCTURE TO DETAIL ON SHEET C1.20. GRADE PARCEL TOWARDS BASIN FOR POSITIVE DRAINAGE - TYPICAL.

76 LF STEEL CASING FOR WATER MAIN
8+09.00 40.09' L.
8+91.33 38.83' L.

15" STUB @ 0.62% ¢ BASIN OUTLET FOR FUTURE PARCEL 10 STORM CONNECTION
10+24.8 104.2' L.
I.E. 100.63

8" STUB 106LF @ 1.0% FOR FUTURE PARCEL 10 SANITARY
11+00 82.0' L.
I.E. 98.96

11.25° BEND 421+60.17
N. 290,614.33
E. 13,464,158.45

APPROX. LOCATION OF OLD SOLVAY OUTFALL SEWER

FUTURE RAIL SPUR (BY OTHERS)

CONC. ENCASEMENT

200' PRIVATE EASEMENT FOR PUBLIC UTILITIES

OVERHEAD PIPE BRIDGE

ROUGE RIVER

CITY OF DETROIT

CITY OF RIVER ROUGE

N. 290,500

68072

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG.
1-800-482-7171
(or Your Local Underground Locating Service)
ALTERNATE NUMBER (810) MISS-DIG
COLOR CODES FOR UTILITY LOCATING
Yellow — Oil, Gas
Orange — Phone & CATV
Red — Electric
Blue — Water
Green — Storm Drain
Brown — Sewer
Pink — Surveying
IF YOU ARE GOING TO MAKE ROAD CHANGES MORE ... CALL MISS DIG

DWSD SYSTEM ACCEPTANCE

DESIGN REVIEWED: DLS M. Hudson	DATE 3-18-04
HEAD ENGR.-DES. Edward Abdo	3-20-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	
MDEQ	L.S.*
MDPH	D JOB*
R/W*	DRWG/REF*
	SEWER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 30'
0 10 20 30 60 90
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

Iafrate
ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN 48091
(586) 756-1070

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2356 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: UTILITY PLAN 3+50 to 11+00
SHEET NO.: C2.11

PARCEL 12

PARCEL 5

PARCEL 6

PARCEL 4

PARCEL 3

APPROX. LOCATION OF OLD SOLVAY OUTFALL PIPE

PT 480'± R CURVE
N. 290,731.60
E. 13,464,441.61
424+71.77

12" G.V. 4W.
424+74.14

E. 13,461,500

N. 291,000

N. 290,500

TEMPORARY DETENTION POND FOR PARCEL 12

EL. 1043

FC 455'± R
N. 291,163.03
E. 13,464,930.20
431+23.54

EL. 1043

CAUTION
OVERHEAD WIRES

200 LF STEEL CASING FOR WATER MAIN
15+03 52.0' L.
11+03 50.0' L.

CONC. ENCASE HDPE PIPE UNDER DRIVE (TYP.)

CAUTION
OVERHEAD WIRES

8" STUB 40LF @ 1.0% FOR FUTURE PARCEL 6 SANITARY CONNECTION
13+92.8 61.6' R.
I.E. 98.60

15" STUB @ 0.90% FOR FUTURE PARCEL 6 STORM CONNECTION
14+77.92 60.00' R.
I.E. 100.80

4" WATER SERVICE
15+01 45' R.

12" STUB, @0.75% FOR FUTURE PARCEL 5 STORM CONNECTION
15+15.25 77.72' R.
I.E. 99.50

8" STUB 56LF @ 1.0% FOR FUTURE PARCEL 5 SANITARY CONNECTION
15+31.6 77.8' R.
I.E. 98.0

145 LF 6" STEEL CASING FOR FUTURE GAS
17+17.63 35.00' R. I.E. 101.5
18+62.63 35.00' R. I.E. 101.5

8" STUB 40LF @ 1.0% FOR FUTURE PARCEL 4 SANITARY CONNECTION
16+71.93 62.5' R.
I.E. 98.0

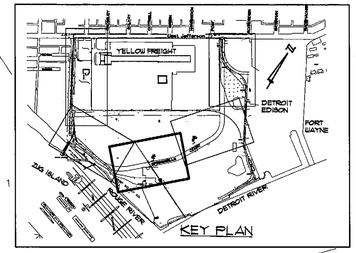
15" STUB @ 1.35% FOR FUTURE PARCEL 4 STORM CONNECTION
17+81.8 94.7' L.
I.E. 100.00

FUTURE GAS BY DTE

FUTURE RAIL SPUR (BY OTHERS)

RAIL SPUR FOR LAFARGE PARCEL (BY OTHERS)

KEY PLAN



3 WORKING DAYS
BEFORE YOU DIG CALL MISS DIG.
1-800-482-7171
For the location of public utility lines.
ALTERNATE NUMBER (810) MISS-DIG
COLOR CODES FOR UTILITY LOCATING:

Yellow	OIL & GAS	Blue	WATER
Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
		Pink	SURVEYING

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES ... CALL MISS DIG

DWSD SYSTEM ACCEPTANCE

DESIGN REVIEWED: DLS M Anderson	DATE 3-18-04
HEAD ENGR-DES. Richard Roth	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO.	L.S.#
MDEQ	D JOB#
MDPH	
R/U#	DRUG/REP# BEUER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 30'
0 10 20 30 60 90
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

Iafrate
ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD · WARREN, MICHIGAN 48091
(586) 756-1070

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
960 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-0612 FAX (313) 963-2586 UTILITY.UT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: UTILITY PLAN 11+00 to 20+50
SHEET NO.: C2.12

68073

2332-4

PARCEL

CAUTION OVERHEAD WIRES

CAUTION OVERHEAD WIRES

CAUTION OVERHEAD WIRES

TEMPORARY STORM WATER DETENTION BASIN. EXCAVATE SIDESLOPES AT 1:6 MAXIMUM. INSTALL TEMPORARY OUTLET STRUCTURE TO DETAIL ON SHEET C1.20. GRADE PARCEL TOWARDS BASIN FOR POSITIVE DRAINAGE - TYPICAL.

EL. 105.3

BASIN LENGTH = 340'

24" STUB @ 0.54% & BASIN OUTLET FOR FUTURE PARCEL 12 STORM 21+04.2 74.1' L. I.E. 99.28

8" STUB 70LF @ 1.0% FOR FUTURE PARCEL 12 SANITARY 45.00' L. 24+13.6 I.E. 94.36

12"x12"x6" TEE 437+00 50.00 (6" WATER)

6" GV 4 W 0' R 50+14.00 (6") 43.00 45° BEND

11.25° BEND N. 291,712.11 E. 13,465,270.89 437+71.95

12" GV 4W. 438+06.31

FH-9

FH-10

FUTURE GAS BY DTE (NIC)

NEW OVERHEAD FOR FLD AND DTE - SEE DWG C1.30 & ELECT. DWGS.

6" PLUG 24+82.11 38' R 50+78 (6" WATER)

24" STUB @ 0.60% FOR FUTURE STORM FROM PARCEL 2 25+00.00 45.00' R I.E. 98.00

8" SAN. FOR PARCEL 2 24+50 45' R

APPROX. LOCATION OF ABANDONED GAS

STUB FOR FUTURE AGGREGATE ROAD DRAINAGE 29+44.14 53.01' L. I.E. 94.34

FUTURE AGGREGATE ROAD

22.5° BEND N. 291,889.12 E. 13,465,285.14 439+89.33

12"x12"x10" TEE N. 291,858.30 E. 13,465,287.89 439+42.03

60.00 (10" WATER)

10" GV 4W 27+23.35 0' R 60+27.13 (10") I.E. 98.5

10" 11.25° BEND 27+22.61 4.71' R 60+31.89 (10" WATER) I.E. 98.5

10" 22.5° BEND 27+16.77 22.76' R 60+50.97 (10" WATER) I.E. 98.5

10" PLUG FOR FUTURE WATER FOR PARCEL 2 27+06.02 37.01' R 60+63.5 (10" WATER) I.E. 98.5

WATER SERVICES AND VALVES TO PARCEL 2 BY OTHERS

8" STUB 48LF @ 1.0% FOR FUTURE PARCEL 1 SANITARY 28+17.9 50.00' R I.E. 101.00

15" STUB @ 0.76% FOR FUTURE PARCEL 1 STORM 27+56.29 121.83' R I.E. 98.02

8" STUB 87 LF @ 1.0% FOR SANITARY FROM PARCEL 2 26+64.56 85.17' R I.E. 97.00

FLAPGATE AND ACCESS CHAMBER SEE C4.10

NEW SCHROEDER OUTFALL JUNCTION CHAMBER - SEE C4.10

EX. 3 BARRELS FOR SCHROEDER OUTFALL

PIPELINE EASEMENT

NEW DWSD EASEMENT FOR SEWER

INGRESS EGRESS EASEMENT

FUTURE AGGREGATE ROAD

KEY PLAN

YELLOW FREIGHT

DETROIT EDISON

FORT WAYNE

23rd ISLAND

ROUGE RIVER

DETROIT RIVER

PARCEL 2

68074

DWSD SYSTEM ACCEPTANCE

DESIGN REVIEWED: DLS N. Nelson	DATE 3-18-04
HEAD ENGR-DES. Richard Bush	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO.	L&S#
MDEQ	D JOB#
MDPH	
R/U#	DRWG/REF# SEWER
	WATER

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG.
1-800-482-7171
For the location of public utility lines.
ALTERNATE NUMBER (810) MISS-DIG
COLOR CODES FOR UTILITY LOCATING

Yellow	OIL & GAS	Blue	WATER
Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
		Pink	SURVEYING

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES ... CALL MISS DIG

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 30'
0 10 20 30 60 90
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

Iafrate
ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2613 FAX (313) 963-2186 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: UTILITY PLAN 20+60 to 30+00
SHEET NO.: C2.13

02332-5

SCHROEDER REGULATOR CHAMBER

SCHROEDER OUTFALL SEWERS

STORM MH RIM 109.05

STORM MH RIM 109.57

STORM MH RIM 109.76 LADDER CHAMBER BOTTOM OF CHAMBER

STORM MH (PER PLAN) UNABLE TO LOCATE IN FIELD

STORM MH RIM 108.64 LARGE N.S. PIPE 1" PIPE 99.64 N.S. 92.94

STORM MH RIM 109.09

6'-Ø" ST. 6'-0" CYL 3 RING SEWER

6'-10" ST. 6'-10" CYL 3 RING SEWER

OLD 6' WATERMAN SEWER

OLD 6'-10" SCHROEDER SEWER

6'-0" CYL 3 RING SEWER

6'-10" CYL 3 RING SEWER

STORM MH RIM 107.35 LARGE N.S. PIPE N 94.63 S 94.33

STORM MH (PROP) CHANGE TO 72"

RECEIVE CB RIM 107.55 LARGE N.S. PIPE 18" IN PROP

6'-0" CYL 3 RING SEWER

6'-10" CYL 3 RING SEWER

16'-0" CYL SEWER

N. 293000

E. 13465000

42" WATER

EX. PLD/DTE POLE

T61V SEE C4.40 FOR DETAILS

451+56±

24.0

APPROX. LOCATION OF ABANDONED HP GAS (TYP)

GAS MH

GAS VENT 110.95

GAS MH

GAS VENT 110.59

P-1 P-2 P-3 P-4 P-5 P-6 P-7 P-8 P-9 P-10 P-11 P-12 P-13

D8-41 D8-42 D8-43 D8-44 D8-45 D8-46 D8-47 D8-48

FH-14 FH-13 FH-12

37+69.84 1600' L.

37+80.52 2400' L.

TOP 2 EX. 10" PROPANE LINES AT EL. 104.3± MAINTAIN 2' MIN. CLEAR TO PIPELINES (TYP.)

PIPELINE EASEMENT

NEW GAS BY DTE

CAUTION OVERHEAD LINES

GRAVEL

PARCEL 1

APPROX. LOCATION OF OLD SOLVAY CONNECTION TO THE SCHROEDER OUTFALL

68675

KEY PLAN

YELLOW FREIGHT

DETROIT EDISON

FORT WAYNE

23 MILE

ROUGE RIVER

DETROIT RIVER

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IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES — CALL MISS DIG

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Hudson	DATE 3-18-04
HEAD ENGR-DES. Richard Mark	3-24-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO. MDEQ MDPH	L&S* D JOB*
R/W*	DRWG/REF* SEWER WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 30'
0 10 20 30 60 90
SCALE IN FEET

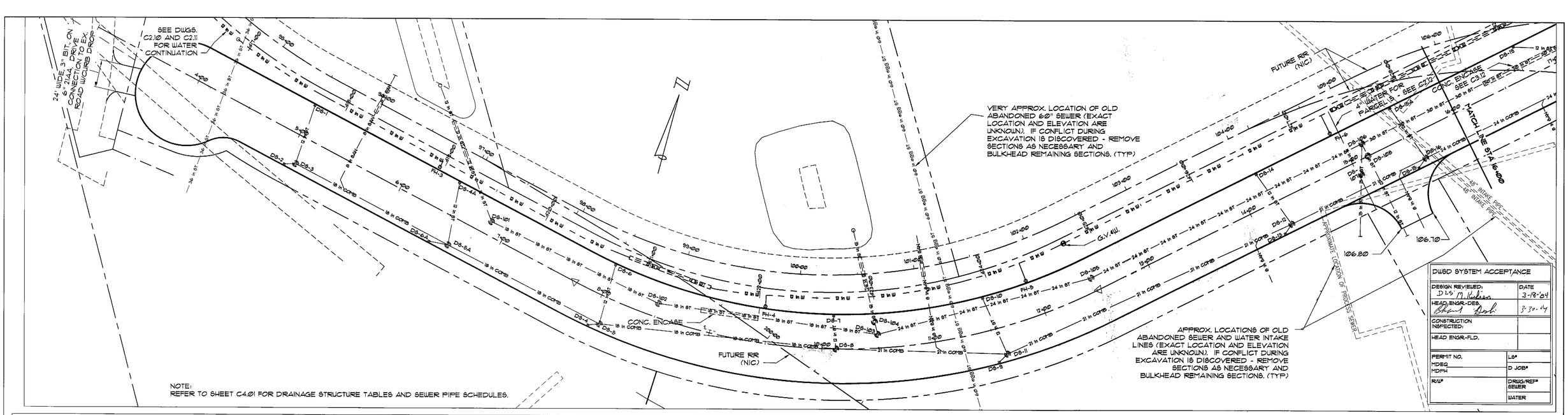
DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2164 WWW.TYJT.COM

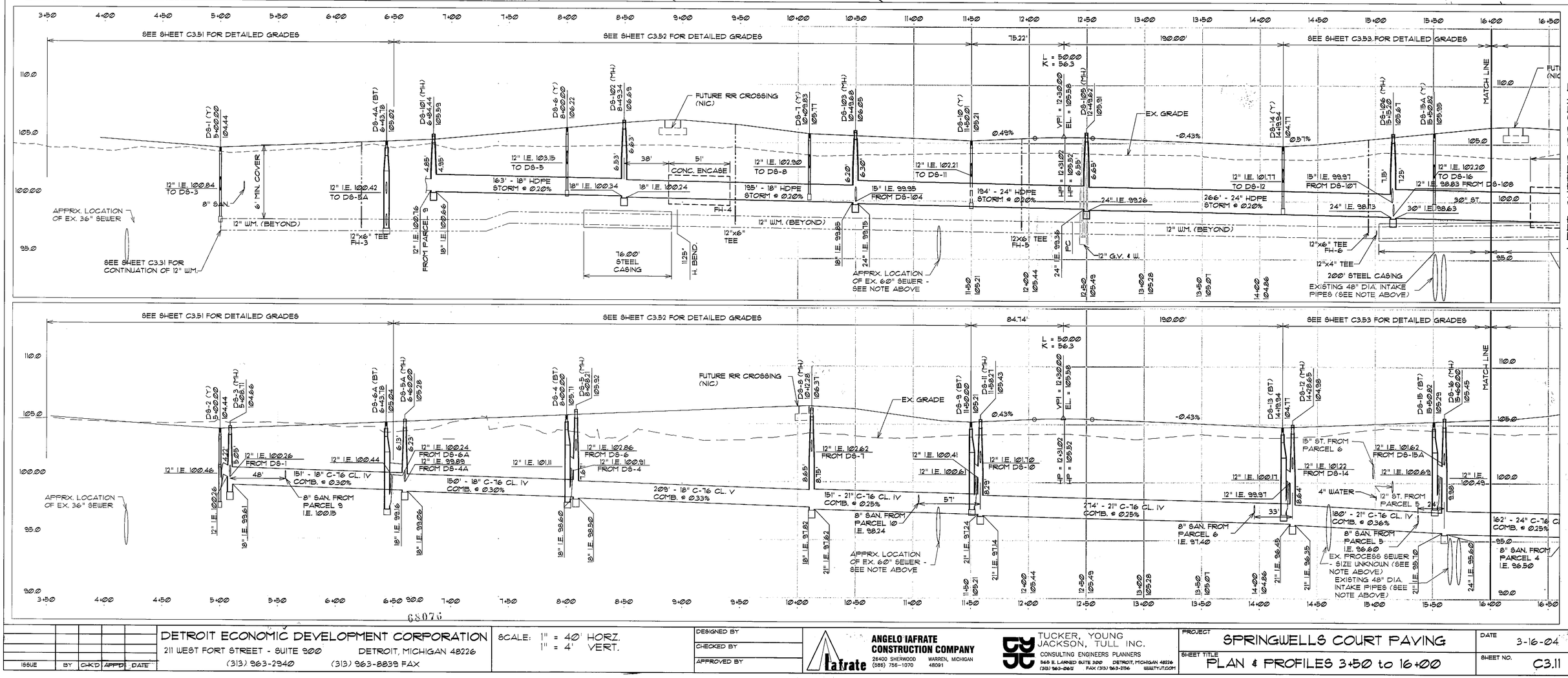
PROJECT: SPRINGWELLS COURT PAVING
SHEET TITLE: UTILITY PLAN 30+00 to Jefferson
DATE: 3-16-04
SHEET NO.: C2.14

2332-6



NOTE:
REFER TO SHEET C4.01 FOR DRAINAGE STRUCTURE TABLES AND SEWER PIPE SCHEDULES.

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: D.P.S. M. Nelson	DATE 3-18-04
HEAD, ENGR.-DEB Glenn Dash	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	L&S#
MDEQ	D JOB#
MDPH	
R/W#	DRWG/REP# SEWER
	WATER



ISSUE	BY	CK'D	APP'D	DATE	

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 40' HORZ.
1" = 4' VERT.

DESIGNED BY
CHECKED BY
APPROVED BY

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TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2852 FAX (313) 963-2156 WWW.TYJT.COM

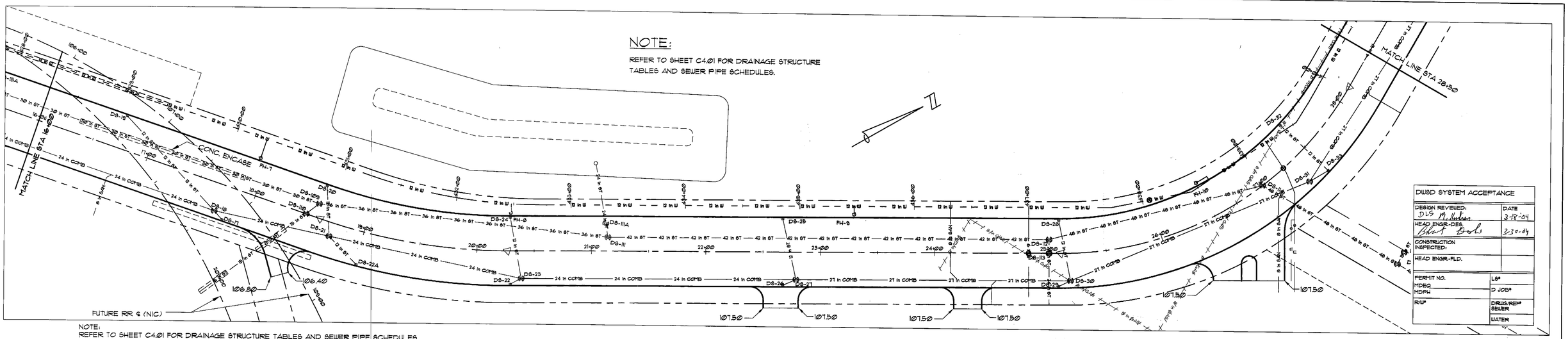
PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: PLAN & PROFILES 3+50 to 16+00
SHEET NO.: C3.11

68076

2332-7

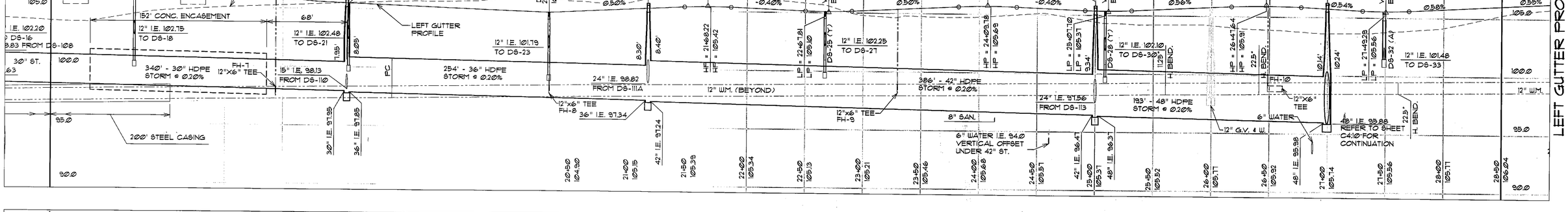
NOTE:

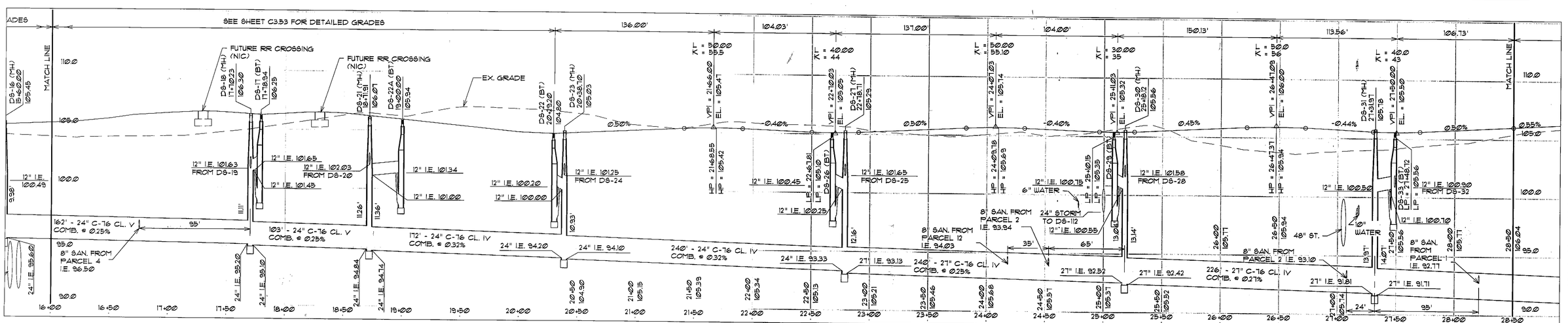
REFER TO SHEET C4.01 FOR DRAINAGE STRUCTURE TABLES AND SEWER PIPE SCHEDULES.



NOTE:
REFER TO SHEET C4.01 FOR DRAINAGE STRUCTURE TABLES AND SEWER PIPE SCHEDULES.

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Anderson	DATE 3-18-04
HEAD ENGR-DES. Gopi Patel	3-18-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	L6#
MDEQ	D JOB#
MDPH	
R/U#	DRUGS/REF# SEWER
	WATER





RIGHT GUTTER PROFILE

LEFT GUTTER PROFILE

65077

ISSUE	BY	CHK'D	APPD.	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 40' HORZ.
1" = 4' VERT.

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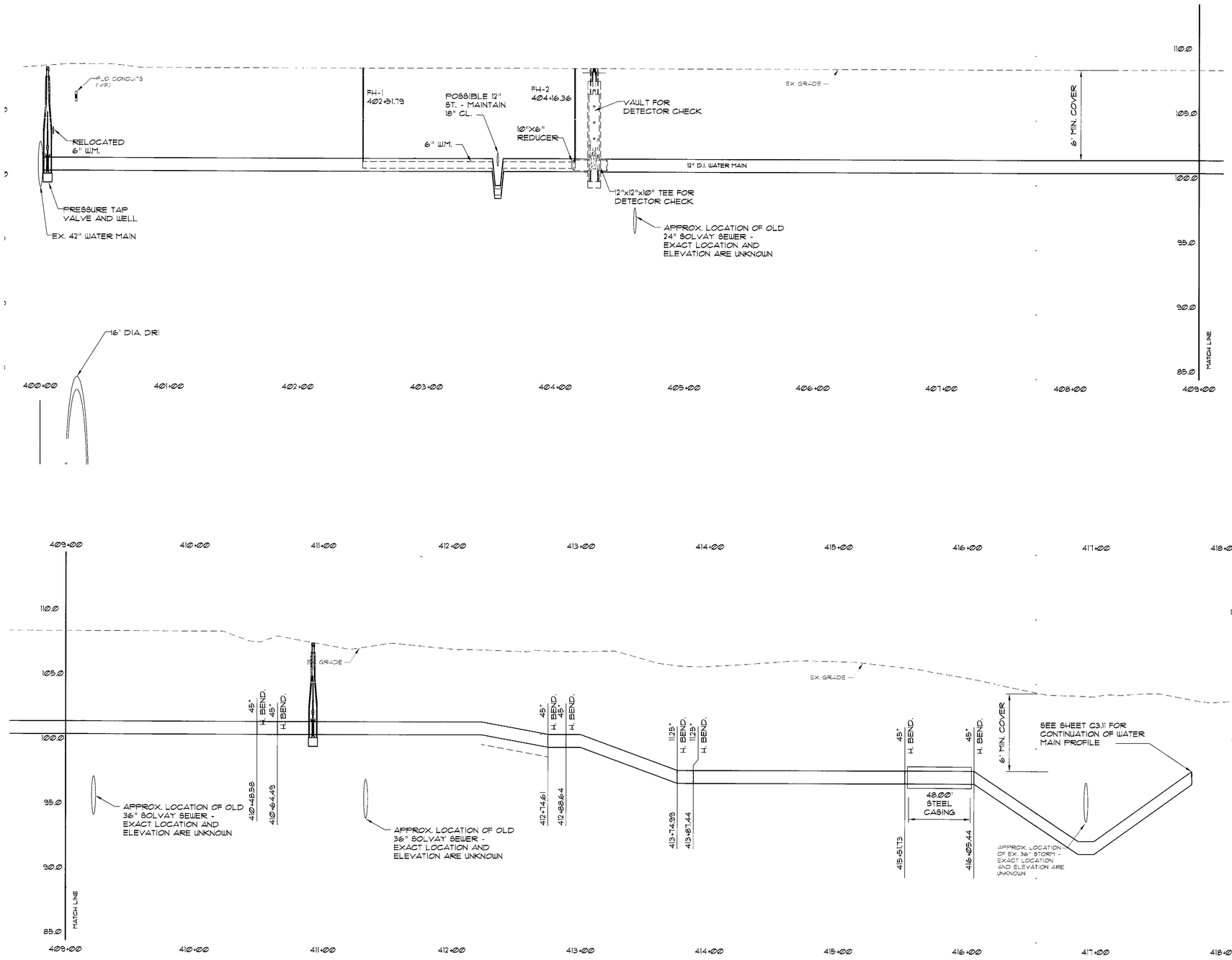
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2622 FAX (313) 963-2564 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: PLAN & PROFILES 16+00 to 28+50
SHEET NO.: C3.12

2332-8



DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Hudalla	DATE 3-18-04
HEAD ENGR-DES.	3-22-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO.	L6#
MDEQ MDPH	D JOB#
R/W#	DRWG/REF# SEWER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 40' HORZ.
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CONSULTING ENGINEERS PLANNERS
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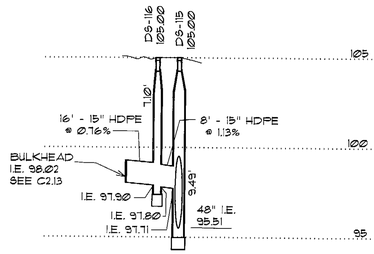
(313) 963-2612 FAX (313) 963-2186 WWW.TYJT.COM

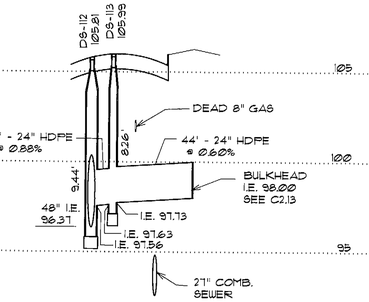
PROJECT: SPRINGWELLS COURT PAVING
SHEET TITLE: WATER MAIN PROFILE SHEET 1

DATE: 3-16-04
SHEET NO.: C3.31

2332-10



PARCEL 1 STORM CONNECTION



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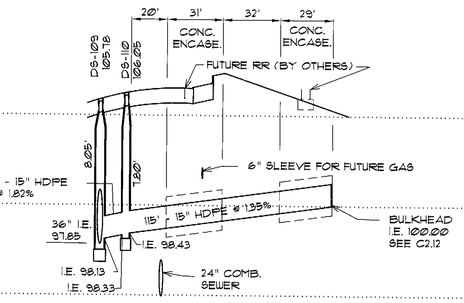

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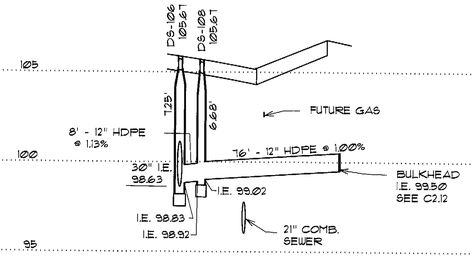

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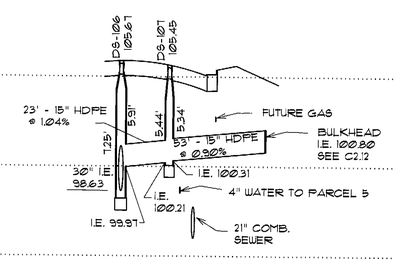

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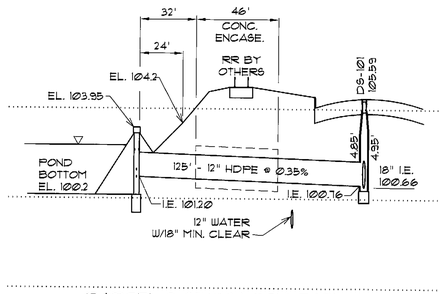

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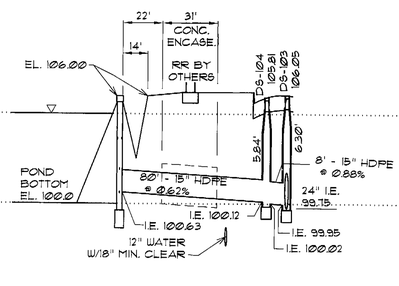

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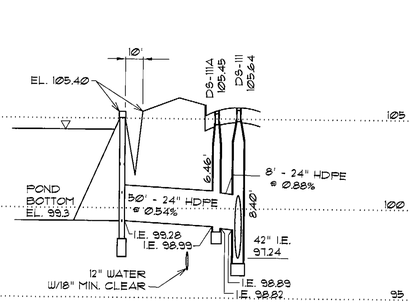

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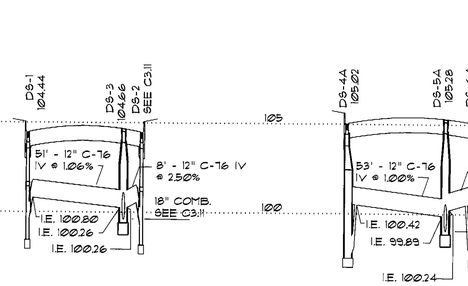
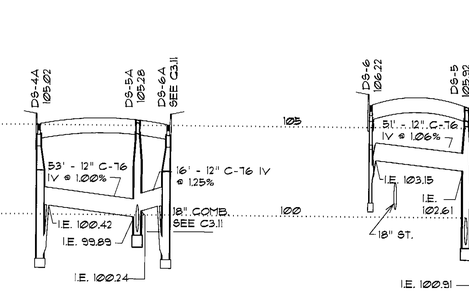
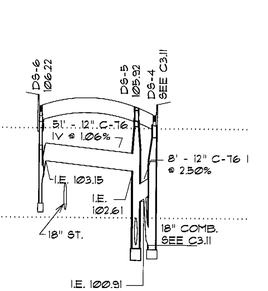


DS-1, 2, & 3



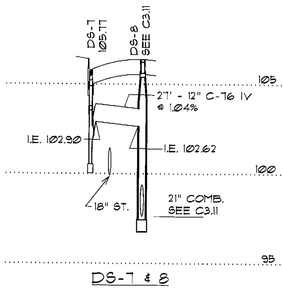
DS-4A, 5A, & 6A



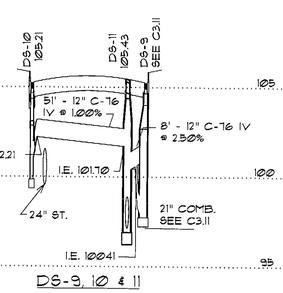
DS-4, 5, & 6

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M Kuhlow	DATE 3-18-04
HEAD ENGR.-DES.	DATE 8-20-14
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	

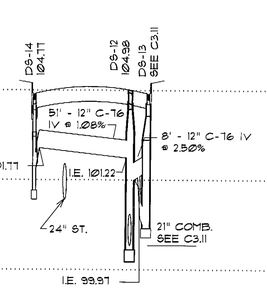
PERMIT NO.	L8*
MDEQ	D JOB*
MDPH	
R/W*	DRUG/REP* SEWER
	WATER



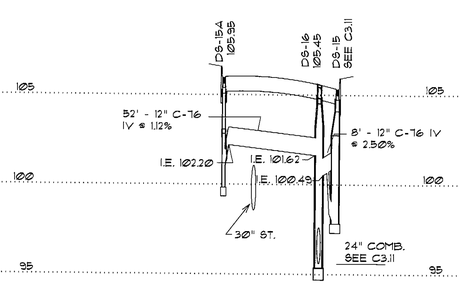
DS-7 & 8



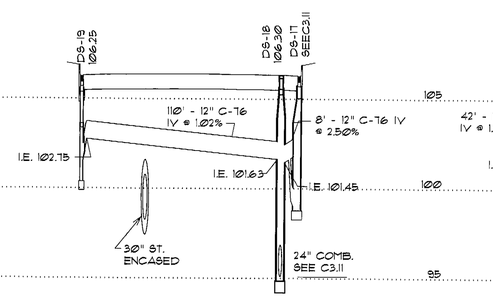
DS-9, 10 & 11



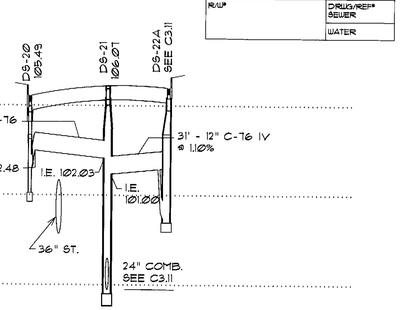
DS-12, 13 & 14



DS-15, 15A, & 16



DS-17, 18 & 19



DS-20, 21 & 22A

6968

1686JE	BY	CHKD	APPD	DATE		

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL

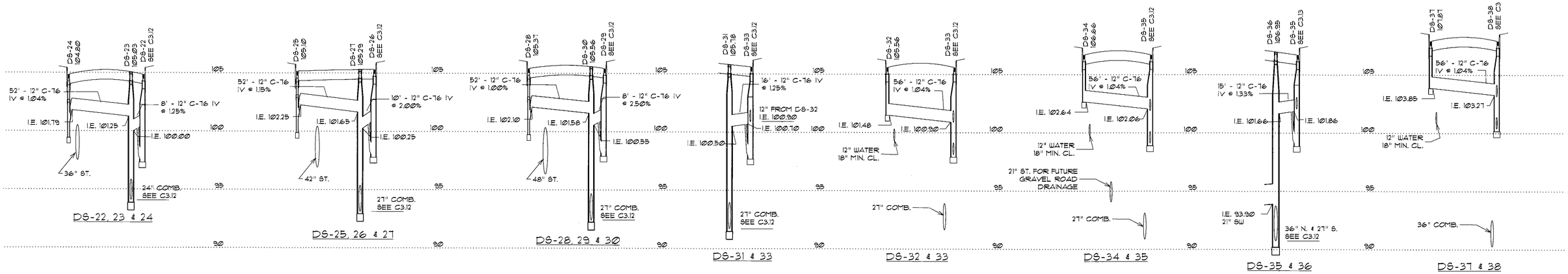
DESIGNED BY
CHECKED BY
APPROVED BY

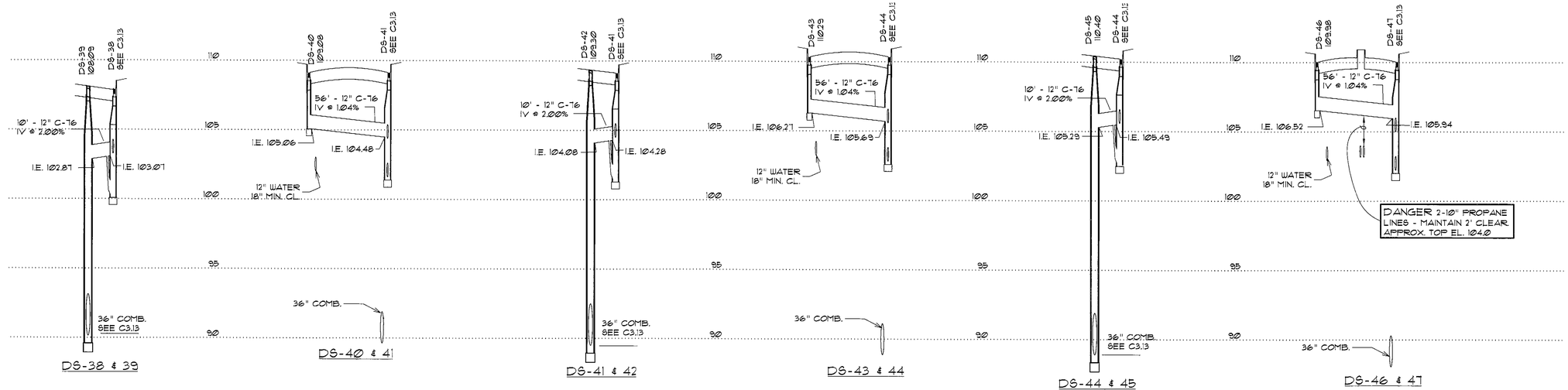
ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2156 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: MISC. PROFILES
SHEET NO.: C3.41

2332-11





DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: D.L.S. M. Hudson	DATE 3-18-04
HEAD ENGR.-DES.	3-20-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	LS#
MDEQ MDPH	D JOB#
R/U#	DRUG/REF# SEWER
	WATER

C5081

ISSUE	BY	CHKD	APPD	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
968 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2156 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
SHEET TITLE: MISC. PROFILES
DATE: 3-16-04
SHEET NO.: C3.42

2332-12

TABLE 1 - Combined Sewer & Drainage Structures

STRUCTURE NUMBER	LOCATION STATION	LOCATION OFFSET	RIM ELEV.	SIZE	TYPE	SEWER SIZE, DIRECTION & INVERT	FRAME & COVER	REMARKS
DS-1	5+00	28.92' LT.	104.44	18" x 12"	SPECIAL "Y"	12" S. I.E. 100.80	FLAT GRATE	SPECIAL "Y" INLET TO DS-3
DS-2	5+00	28.92' RT.	104.44	18" x 12"	SPECIAL "Y"	12" NE. I.E. 100.46	FLAT GRATE	SPECIAL "Y" INLET TO DS-3
DS-3	5+08.71	24.0' RT.	104.66	48"	STANDARD DWSD MANHOLE	12" N. I.E. 100.26 12" SW. I.E. 100.26 18" SE. I.E. 99.81	BOLT-DOWN MANHOLE COVER	FROM INLET DS-1 FROM INLET DS-2
DS-4A	6+43.78	28.92' LT.	105.02	48"	BT	12" SE. I.E. 100.42	FLAT GRATE	TO DS-5A
DS-6A	6+60	24.0' RT.	105.28	48"	STANDARD DWSD MANHOLE	18" NW. I.E. 99.18 12" NW. I.E. 99.88 12" SW. I.E. 100.24 18" SE. I.E. 99.06	BOLT-DOWN MANHOLE COVER	FROM INLET DS-4A FROM INLET DS-6A
DS-6A	6+43.78	28.92' LT.	105.04	48"	BT	12" NE. I.E. 100.44	FLAT GRATE	TO DS-5A
DS-4	8+00	28.92' RT.	105.71	48"	BT	12" NE. I.E. 101.11	FLAT GRATE	TO DS-5
DS-5	8+08.21	24.0' RT.	105.92	48"	FLAT TOP STANDARD MANHOLE PER MDOT	18" NW. I.E. 98.60 12" SW. I.E. 100.91 12" N. I.E. 102.61 18" NE. I.E. 98.50	BOLT-DOWN MANHOLE COVER	FROM INLET DS-4 FROM INLET DS-6
DS-6	8+00	28.92' LT.	106.22	18" x 12"	SPECIAL "Y"	12" S. I.E. 103.15	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-7	10+09.83	28.92' LT.	105.77	18" x 12"	SPECIAL "Y"	12" SE. I.E. 102.90	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-8	10+12.26	0.00'	106.37	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	18" SW. I.E. 97.82 12" SW. I.E. 102.62 21" NE. I.E. 97.62	BOLT-DOWN MANHOLE COVER	FROM INLET DS-7
DS-9	11+50	28.92' RT.	105.21	48"	BT	12" NE. I.E. 100.41	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-10	11+50	28.92' LT.	105.21	18" x 12"	SPECIAL "Y"	12" SE. I.E. 102.21	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-11	11+56.27	24.0' RT.	105.43	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	21" SW. I.E. 97.24 12" SW. I.E. 100.51 12" NW. I.E. 101.70 21" NE. I.E. 97.14	BOLT-DOWN MANHOLE COVER	FROM INLET DS-9 FROM INLET DS-10
DS-12	14+28.85	24.0' RT.	104.98	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	21" SW. I.E. 96.45 12" SW. I.E. 99.97 12" NW. I.E. 101.22 21" NE. I.E. 96.35	BOLT-DOWN MANHOLE COVER	FROM INLET DS-13 FROM INLET DS-14
DS-13	14+19.94	28.92' RT.	104.77	48"	BT	12" NE. I.E. 100.17	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-14	14+19.94	28.92' LT.	104.77	18" x 12"	SPECIAL "Y"	12" SE. I.E. 101.77	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-15A	15+50.82	28.92' LT.	105.95	18" x 12"	SPECIAL "Y"	12" SE. I.E. 102.20	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-15	15+50.82	28.92' RT.	105.29	48"	BT	12" NE. I.E. 100.66	FLAT GRATE	TO DS-16
DS-16	15+60	24.0' RT.	105.45	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	21" SW. I.E. 95.70 12" NW. I.E. 101.62 12" SW. I.E. 100.49 24" NE. I.E. 95.60	BOLT-DOWN MANHOLE COVER	FROM INLET DS-15A FROM INLET DS-15
DS-17	17+78.94	28.92' RT.	106.25	48"	BT	12" NW. I.E. 101.65	FLAT GRATE	TO DS-18
DS-18	17+70.23	24.0' RT.	106.30	48"	STANDARD DWSD MANHOLE	24" SW. I.E. 95.20 12" NE. I.E. 101.45 12" SW. I.E. 101.63 24" NE. I.E. 95.10	BOLT-DOWN MANHOLE COVER	FROM INLET DS-17 FROM INLET DS-19
DS-19	18+71.94	28.92' LT.	106.25	18" x 12"	SPECIAL "Y"	12" SW. I.E. 102.75	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-20	18+56.62	28.92' LT.	105.49	18" x 12"	SPECIAL "Y"	12" SE. I.E. 102.49	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-21	18+71.91	12.0' RT.	106.07	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	24" SW. I.E. 94.84 12" NW. I.E. 102.03 12" NE. I.E. 101.00 24" NE. I.E. 94.74	BOLT-DOWN MANHOLE COVER	FROM INLET DS-20 FROM INLET DS-22A
DS-22A	19+00	28.92' RT.	105.84	48"	BT	12" SW. I.E. 101.34	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-22	20+29.20	28.92' RT.	104.80	48"	BT	12" N. I.E. 100.20	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-23	20+38.70	24.0' RT.	105.03	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	24" SW. I.E. 94.20 12" S. I.E. 100.00 12" NW. I.E. 101.25 24" NE. I.E. 94.10	BOLT-DOWN MANHOLE COVER	FROM INLET DS-22 FROM INLET DS-24

TABLE 1 - Continued

STRUCTURE NUMBER	LOCATION STATION	LOCATION OFFSET	RIM ELEV	SIZE	TYPE	SEWER SIZE, DIRECTION & INVERT	FRAME & COVER	REMARKS
DS-24	20+29.20	28.92' LT.	104.80	18" x 12"	SPECIAL "Y"	12" SE. I.E. 101.79	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-25	22+67.81	28.92' LT.	105.10	18" x 12"	SPECIAL "Y"	12" SE. I.E. 102.25	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-26	22+67.81	28.92' RT.	105.10	48"	BT	12" N. I.E. 100.45	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-27	22+78.71	24.0' RT.	105.29	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	24" SW. I.E. 93.33 12" NW. I.E. 101.65 12" S. I.E. 100.25 27" NE. I.E. 93.13	BOLT-DOWN MANHOLE COVER	FROM INLET DS-25 FROM INLET DS-26
DS-28	25+07.70	28.92' LT.	105.37	18" x 12"	SPECIAL "Y"	12" SE. I.E. 102.10	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-29	25+10.15	28.92' RT.	105.35	48"	BT	12" N. I.E. 100.75	FLAT GRATE	SPECIAL "Y" INLET TO C.E.D. STANDARD
DS-30	25+18.12	24.0' RT.	105.56	48"	REDUCED CONE STANDARD MANHOLE PER MDOT	27" SW. I.E. 92.52 12" NW. I.E. 101.58 12" S. I.E. 100.55 27" NE. I.E. 92.42	BOLT-DOWN MANHOLE COVER	FROM INLET DS-28 FROM INLET DS-29
DS-31	27+31.97	24.0' RT.	105.78	48"	STANDARD DWSD MANHOLE	27" SW. I.E. 91.81 12" N. I.E. 100.50 27" NW. I.E. 91.71	BOLT-DOWN MANHOLE COVER	FROM INLET DS-33
DS-32	27+49.29	28.92' LT.	105.56	24"	"A"	12" NE. I.E. 101.48	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-33	27+48.72	28.92' RT.	105.56	48"	BT	12" SW. I.E. 100.90 12" S. I.E. 100.70	FLAT GRATE	FROM INLET DS-32 CATCH BASIN TO C.E.D. STANDARD
DS-34	29+61.81	28.92' LT.	106.86	24"	"A"	12" NE. I.E. 102.64	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-35	29+61.81	28.92' RT.	106.86	48"	BT	12" SW. I.E. 102.06 12" NW. I.E. 101.96	FLAT GRATE	FROM INLET DS-34 CATCH BASIN TO C.E.D. STANDARD
DS-36	29+72.83	24.0' RT.	106.95	60"	STANDARD DWSD MANHOLE	27" SE. I.E. 90.85 21" SE. I.E. 93.80 12" SE. I.E. 101.66 36" NE. I.E. 90.75	BOLT-DOWN MANHOLE COVER	STUB FOR FUTURE ROAD FROM INLET DS-35
DS-37	31+81.81	28.92' LT.	107.87	24"	"A"	12" NE. I.E. 103.85	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-38	31+81.81	28.92' RT.	107.87	48"	BT	12" SW. I.E. 103.27 12" NW. I.E. 103.07	FLAT GRATE	FROM INLET DS-37 CATCH BASIN TO C.E.D. STANDARD
DS-39	31+90.21	24.0' RT.	108.09	60"	STANDARD DWSD MANHOLE	36" SE. I.E. 90.25 12" SE. I.E. 102.97 36" NW. I.E. 90.15	BOLT-DOWN MANHOLE COVER	FROM INLET DS-38
DS-40	34+01.81	28.92' LT.	109.08	24"	"A"	12" NE. I.E. 105.06	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-41	34+01.81	28.92' RT.	109.08	48"	BT	12" SW. I.E. 104.28 12" NW. I.E. 104.38	FLAT GRATE	FROM INLET DS-40 CATCH BASIN TO C.E.D. STANDARD
DS-42	34+10.22	24.0' RT.	109.30	60"	STANDARD DWSD MANHOLE	36" SE. I.E. 89.80 12" SE. I.E. 104.06 36" NW. I.E. 89.60	BOLT-DOWN MANHOLE COVER	FROM INLET DS-41
DS-43	36+21.81	28.92' LT.	110.29	24"	"A"	12" NE. I.E. 106.27	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-44	36+21.81	28.92' RT.	110.29	48"	BT	12" SW. I.E. 105.69 12" S. I.E. 105.49	FLAT GRATE	FROM INLET DS-43 CATCH BASIN TO C.E.D. STANDARD
DS-45	36+13.09	24.0' RT.	110.40	60"	STANDARD DWSD MANHOLE	36" SE. I.E. 89.00 12" N. I.E. 105.29 36" NW. I.E. 88.90	BOLT-DOWN MANHOLE COVER	FROM INLET DS-44
DS-46	39+32.63	28.92' LT.	109.98	24"	"A"	12" NE. I.E. 106.52	FLAT GRATE	INLET TO C.E.D. STANDARD
DS-47	39+32.63	28.92' RT.	109.98	48"	REDUCED CONE BT	12" SW. I.E. 105.94 12" NW. I.E. 105.00	FLAT GRATE	FROM INLET DS-43 CATCH BASIN TO C.E.D. STANDARD
DS-48	39+58.15	24.0' RT.	110.24	60"	STANDARD DWSD MANHOLE	36" SE. I.E. 87.97 12" SE. I.E. 104.74 15" NW. I.E. 80.00	BOLT-DOWN MANHOLE COVER	FROM INLET DS-47 OUTLET TO D.R.I.

NOTE: ALL CATCH BASIN AND MANHOLE COVERS SHALL BE BOLTED DOWN IN ACCORDANCE WITH DWSD STANDARDS.

TABLE 2 - Combined Sewer Schedule

FROM STRUCTURE	TO STRUCTURE	LENGTH (FEET)	SIZE (IN)	SEWER TYPE	SLOPE %	UPSTREAM INV. ELEV.	DOWNSTREAM INV. ELEV.	REMARKS
DS-3	DS-5A	151	18	C76 - CL. IV	0.30%	99.61	99.16	
DS-5A	DS-5	160	18	C76 - CL. IV	0.30%	99.06	98.60	
DS-5	DS-8	209	18	C76 - CL. V	0.33%	98.50	97.82	UNDER FUTURE RAILROAD SPUR
DS-8	DS-11	151	21	C76 - CL. IV	0.25%	97.62	97.24	
DS-11	DS-12	274	21	C76 - CL. IV	0.25%	97.14	96.45	
DS-12	DS-16	180	21	C76 - CL. IV	0.36%	96.35	95.70	
DS-16	DS-18	162	24	C76 - CL. V	0.25%	95.60	95.20	UNDER FUTURE RAILROAD SPUR
DS-18	DS-21	103	24	C76 - CL. V	0.25%	95.10	94.84	UNDER FUTURE RAILROAD SPUR
DS-21	DS-23	172	24	C76 - CL. IV	0.32%	94.74	94.20	
DS-23	DS-27	240	24	C76 - CL. IV	0.32%	94.10	93.33	
DS-27	DS-30	240	27	C76 - CL. IV	0.25%	93.13	92.52	
DS-30	DS-31	226	27	C76 - CL. IV	0.27%	92.42	91.81	
DS-31	DS-36	247	27	C76 - CL. IV	0.35%	91.71	90.85	
DS-36	DS-39	217	36	C76 - CL. IV	0.23%	90.75	90.25	
DS-39	DS-42	220	36	C76 - CL. IV	0.25%	90.15	89.60	
DS-42	DS-45	203	36	C76 - CL. IV	0.25%	89.50	89.00	
DS-45	DS-48	344	36	C76 - CL. IV	0.27%	88.90	87.97	
DS-48	D.R.I.	19	15	C75 - CL. IV	1.00%	80.00	79.80	
FUTURE ROAD R.O.W.	DS-36	80	21	C76 - CL. IV	0.56%	93.34	92.90	STUB FOR FUTURE ROAD. INSTALL BRICK BULKHEADS

C5082

TABLE 3 - Storm Structures on Schroeder Outfall

STRUCTURE NUMBER	LOCATION STATION	LOCATION OFFSET	RIM ELEV	SIZE	TYPE	SEWER SIZE, DIRECTION & INVERT	FRAME & COVER	REMARKS
DS-101	8+84.44	12.0' LT.	105.69	48"	STANDARD DWSD MANHOLE	12" NW. I.E. 100.76 18" SE. I.E. 100.66	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 9
DS-102	9+49.40	12.0' LT.	106.69	48"	STANDARD DWSD MANHOLE	18" NW. I.E. 100.34 18" NE I.E. 100.24	BOLT-DOWN MANHOLE COVER	
DS-103	10+49.66	12.0' LT.	106.05	48"	STANDARD DWSD MANHOLE	18" W. I.E. 99.85 15" NW. I.E. 99.96 24" NE. I.E. 99.75	BOLT-DOWN MANHOLE COVER	STORM INLET FROM DS-104
DS-104	10+47.55	24.0' LT.	105.81	48"	STANDARD DWSD MANHOLE	15" NW. I.E. 100.12 15" SE I.E. 100.02	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 10
DS-105	12+49.62	12.0' LT.	105.91	48"	STANDARD DWSD MANHOLE	24" SW. I.E. 99.36 24" NE. I.E. 99.26	BOLT-DOWN MANHOLE COVER	
DS-106	15+15.20	12.0' LT.	105.87	60"	STANDARD DWSD MANHOLE	24" SW. I.E. 98.73 15" SE. I.E. 99.97 12" SE. I.E. 98.63 30" NE. I.E. 98.63	BOLT-DOWN MANHOLE COVER	STORM FROM INLET DS-107 STORM FROM INLET DS-108
DS-107	15+02.76	12.0' RT.	105.45	48"	STANDARD DWSD MANHOLE	15" SE. I.E. 100.31 15" NW. I.E. 100.21	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 6
DS-108	15+15.20	0.00'	105.67	48"	STANDARD DWSD MANHOLE	12" SE. I.E. 99.02 12" NW. I.E. 98.92	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 5
DS-109	18+55.16	12.0' LT.	105.78	60"	STANDARD DWSD MANHOLE	30" SW. I.E. 97.95 15" SE. I.E. 99.13 36" NE. I.E. 97.85	BOLT-DOWN MANHOLE COVER	STORM INLET FROM DS-110
DS-110	18+46.90	0.00'	106.05	48"	STANDARD DWSD MANHOLE	15" SE. I.E. 98.43 15" NW. I.E. 98.33	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 4
DS-111	21+14.50	12.0' LT.	105.64	72"	STANDARD DWSD MANHOLE	36" SW. I.E. 97.34 24" NW. I.E. 98.82 42" NE. I.E. 97.24	BOLT-DOWN MANHOLE COVER	STORM INLET FROM DS-111A
DS-111A	21+12.56	24.0' LT.	105.45	48"	STANDARD DWSD MANHOLE	24" NW. I.E. 98.99 24" SE I.E. 98.69	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 12
DS-112	25+00	12.0' LT.	105.81	72"	STANDARD DWSD MANHOLE	42" SW. I.E. 96.47 24" SE. I.E. 97.56 48" NE. I.E. 96.37	BOLT-DOWN MANHOLE COVER	STORM INLET FROM DS-113
DS-113	25+00	0.00'	105.99	48"	STANDARD DWSD MANHOLE	24" SE. I.E. 97.73 24" NW. I.E. 97.63	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 2
DS-114	26+99.86	0.00'	105.24	72"	STANDARD DWSD MANHOLE	48" SW. I.E. 95.98 48" NE. I.E. 95.88	BOLT-DOWN MANHOLE COVER	
DS-115	27+36.03	128.78' RT.	105.00	72"	STANDARD DWSD MANHOLE	48" SW. I.E. 95.61 15" NW. I.E. 97.71 48" NE. I.E. 95.51	BOLT-DOWN MANHOLE COVER	STORM INLET FROM DS-116
DS-116	27+44.08	125.74' RT.	105.00	48"	STANDARD DWSD MANHOLE	15" NW. I.E. 97.90 15" SE I.E. 97.80	BOLT-DOWN MANHOLE COVER	STORM INLET FROM PARCEL 1
DS-117	27+57.92	268.57' RT.	106.75	72"	STANDARD DWSD MANHOLE	48" SW. I.E. 95.10 48" NE. I.E. 95.10	BOLT-DOWN MANHOLE COVER	

REFER TO SHEET C4.10 FOR DETAILS OF DRAINAGE STRUCTURES, DS-118 & DS-119.

TABLE 4 - Sewer Schedule to Schroeder Outfall

FROM STRUCTURE	TO STRUCTURE	LENGTH (FEET)	SIZE (IN)	SEWER TYPE	SLOPE %	UPSTREAM INV. ELEV.	DOWNSTREAM INV. ELEV.	REMARKS
DS-101	DS-102	183	18	HDPE	0.20%	100.86	100.34	
DS-102	DS-103	195	18	HDPE	0.20%	100.24	99.86	
DS-103	DS-105	194	24	HDPE	0.20%	99.75	99.36	
DS-105	DS-106	266	24	HDPE	0.20%	99.26	98.73	
DS-106	DS-109	340	30	HDPE	0.20%	98.63	97.95	
DS-109	DS-111	254	36	HDPE	0.20%	97.85	97.34	
DS-111	DS-112	386	42	HDPE	0.20%	97.24	96.47	
DS-112	DS-114	193	48	HDPE	0.20%	96.37	95.98	
DS-114	DS-115	136	48	HDPE	0.20%	95.98	95.61	
DS-115	FLAP GATE CHAMBER INLET	170	48	HDPE	0.25%	95.51	95.09	CAST HDPE PIPE INTO GATE CHAMBER
FLAP GATE CHAMBER OUTLET	SCHROEDER CHAMBER	34	48	HDPE	0.25%	94.09	94.00	CAST HDPE PIPES INTO CHAMBERS

TABLE 5 - Fire Hydrant Locations

FIRE HYDRANT LOCATIONS				
#	ROAD STA.	ROAD OFFSET	W.M. STA.	W.M. OFFSET
1	-	-	402+50.53	9.6' L.
2	-	-	404+15.10	9.4' L.
3	6+22.11	33' L.	418+96.21	5.75' R.
4	9+45.7	33' L.	422+05.57	9.8' R.
5	11+93.53	33' L.	424+31.51	16.46' R.
6	14+93.86	33' L.	427+26.59	17.5' R.
7	17+93.86	33' L.	430+26.59	17.5' R.
8	20+29.65	33' L.	432+47.94	7.75' R.
9	23+29.65	33' L.	435+47.54	7.0' R.
10	26+48.64	33' L.	438+50.73	4.37' L.
11	29+67.68	33' L.	441+56.03	8.14' L.
12	32+07.09	33' L.	443+95.44	8.22' L.
13	35+07.09	33' L.	446+95.44	8.22' L.
14	38+05.83	33' L.	449.97.03	16.22' L.

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: D.L.S.	DATE 3-18-04
HEAD ENGR.-DES.	DATE 3-20-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	L#
MDEQ	D JOB#
MDPH	
RAP	DRUG/REP SELER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

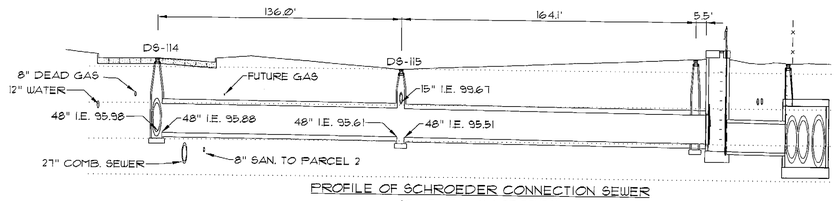
DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 755-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2564 WWW.TYJ.COM

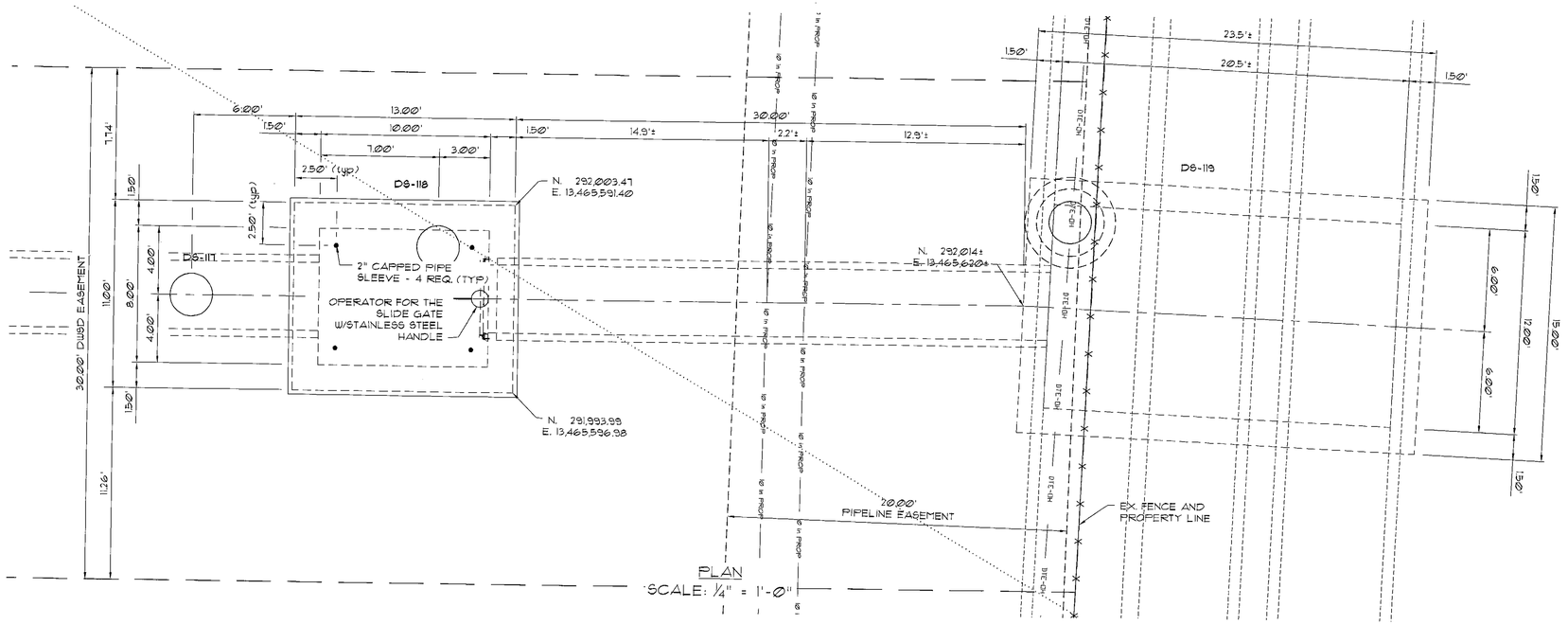
PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: STRUCTURE TABLES
SHEET NO.: C4.01

2332-13



PROFILE OF SCHROEDER CONNECTION SEWER

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

WORK SHALL BE IN ACCORDANCE WITH THE 2003 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND SPECIAL PROVISIONS. STRUCTURAL CONCRETE SHALL BE MDOT GRADE S1 AND REINFORCING STEEL SHALL BE ASTM A615, GRADE 60.

THE FLAP GATE SHALL BE 48" RODNEY HUNT FV-AC FLAP GATE MOUNTED TO A CAST IRON WALL THIMBLE OR AN APPROVED EQUAL.

THE SLIDE GATE SHALL BE OF ALUMINUM CONSTRUCTION AND THE RODNEY HUNT HY-Q GATE SERIES OR AN APPROVED EQUAL.

COMPLETE SHOP DRAWINGS AND DETAILS OF INSTALLATION FOR THE FLAP GATE AND SLIDE GATE SHALL BE PROVIDED FOR DWSD REVIEW AND APPROVAL.

PROVIDE 2 ADDITIONAL #6 BARS DIAGONALLY IN EACH FACE OF THE SLAB AND WALLS AT ALL PENETRATIONS OR OPENINGS LARGER THAN 12".

PROVIDE CORNER BARS 24"X24" TO LAP WITH HORIZONTAL REINFORCEMENT. PROVIDE SHOP DRAWINGS FOR THE REINFORCING STEEL FOR REVIEW AND APPROVAL.

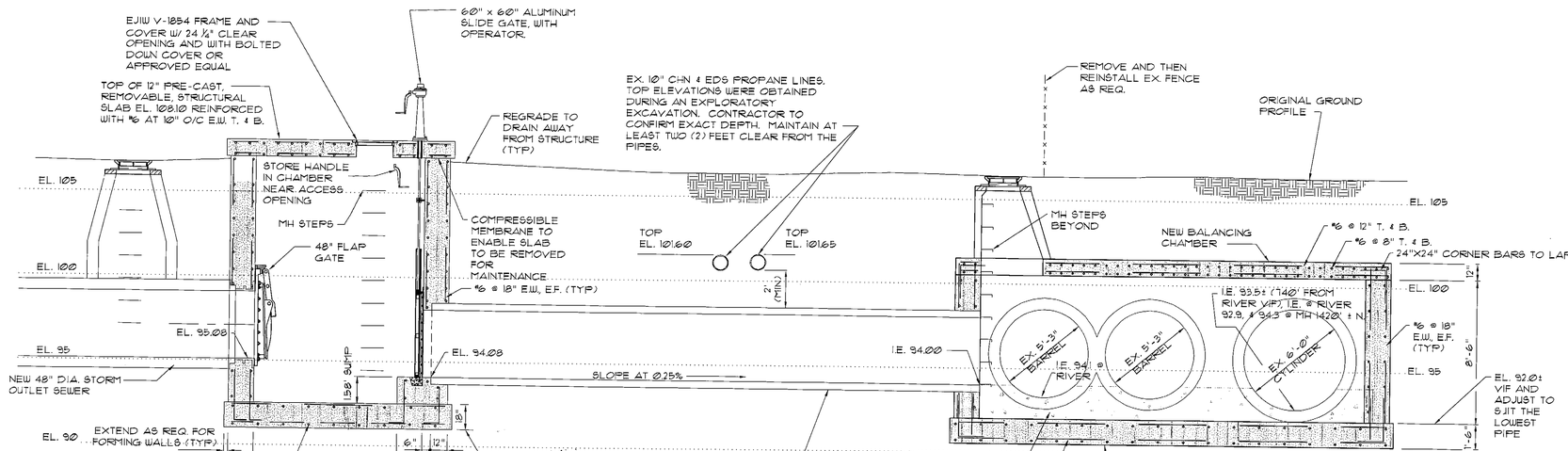
CAREFULLY EXPOSE BOTH PROPANE PIPE LINES TO CONFIRM ASSUMED LOCATIONS AND PROVIDE SUPPORT FOR MORE THAN 20 FEET OF UNSUPPORTED PIPE LINE (TYP.).

PROVIDE STAINLESS STEEL ANCHORS AND SUPPORT TO STORE THE OPERATOR HANDLE IN THE CHAMBER FOR CONVENIENT ACCESS FROM THE OPENING.

THE FOUNDATION AND WALLS FOR THE BALANCING CHAMBER SHALL BE CONSTRUCTED WITH THE 3 EXISTING LINES INTACT AND SUPPORTED IN PLACE TO MAINTAIN FLOW.

DEMOLITION OF THE SEWERS, INSIDE THE CHAMBER, WILL INCLUDE PREVENTING RIVER WATER FROM ENTERING WITH INFLATABLE BLADDERS OR OTHER APPROVED MEANS AND WILL ONLY BEGUN WITH PRIOR DWSD APPROVAL AND WHEN THE RAIN FORCAST IS VERY FAVORABLE. THE CONTRACTOR SHALL MAINTAIN FLOW IN THE SEWER DURING ALL RAIN EVENTS.

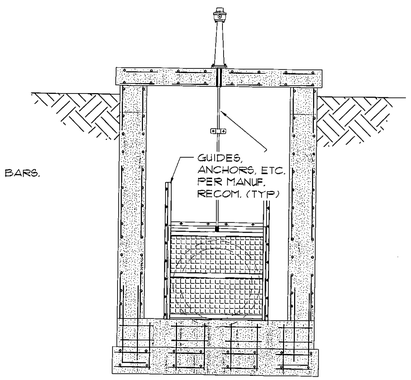
ALL WATER PUMPED FROM THE EXISTING OUTFALL DURING CONSTRUCTION SHALL BE DISCHARGED TO THE COMBINED SEWER. OBTAIN A DISCHARGE PERMIT FROM DWSD'S INDUSTRIAL WASTE SECTION.



SECTION ALONG CENTER LINE OF PIPE

SCALE: 1/4" = 1'-0"

NOTE: ELEVATIONS OF EX. OUTFALL SEWERS ARE APPROXIMATE. THE CONTRACTOR SHALL CONFIRM EXACT ELEVATIONS IN THE FIELD.



ELEVATION OF SLIDE GATE

SCALE: 1/4" = 1'-0"

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: M. Kuhn	DATE 3-30-04
HEAD ENGR.-DES.	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	L&S#
MDEQ	D JOB#
MDPH	
R/U#	DRUG/REF# SEWER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY
CHECKED BY
APPROVED BY

Iafrate
ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

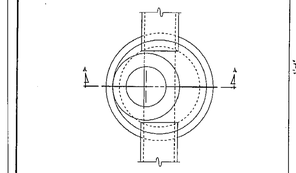
TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-0540 FAX (313) 963-2186 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING

SHEET TITLE: SCHROEDER OUTFALL CHAMBERS

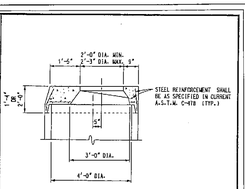
DATE: 3-16-04

SHEET NO. C4.10



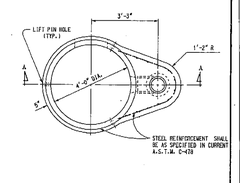
SECTION A - A
TYPICAL MANHOLE

PRECAST REINFORCED CONCRETE SHOWN
OTHER OPTIONS INCLUDE CONCRETE BLOCK, BRICK, OR CAST-IN-PLACE WALL SECTIONS
SEE TYPICAL WALL SECTIONS FOR WALL THICKNESS



DETAIL FOR
1'-4" & 2'-0" TOP SECTIONS

SHAPE MAY VARY FROM DETAIL SHOWN BUT MUST COMPLY WITH A.S.T.M. C-478 AND JOINTS SHALL BE COMPATIBLE WITH THE RISER



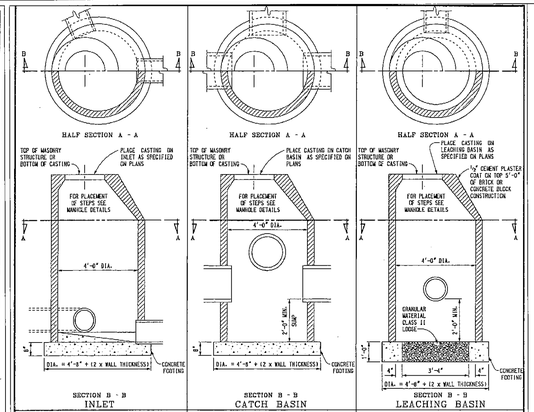
SECTION A - A
TYPICAL PRECAST REINFORCED
BOTTOM SECTION FOR DROP MANHOLE

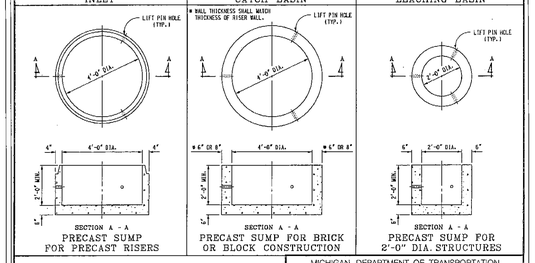
MDOT	ENGINEER OF CONSTRUCTION & TECHNOLOGY	ENGINEER - ROAD DESIGN		
PREPARED BY DESIGN DIVISION	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN	DEPARTMENT DIRECTION Gregory J. Rosine	
DRAWN BY: B.B.T.		BY: CHIEF ENGINEER/DEPUTY DIRECTOR		
CHECKED BY: W.V.P.	ENGINEER OF TRAFFIC AND SAFETY	BUREAU OF HIGHWAY TECHNICAL SERVICES	12-21-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

DRAINAGE STRUCTURES

12-21-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE	R-1-D	SHEET 1 OF 5

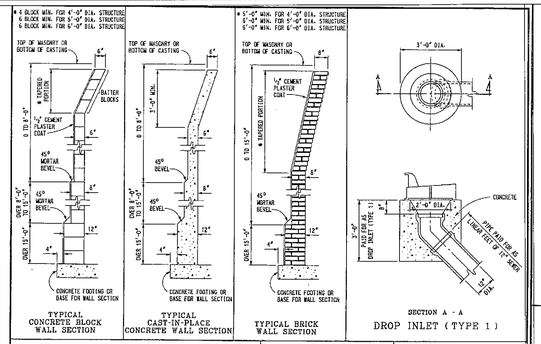


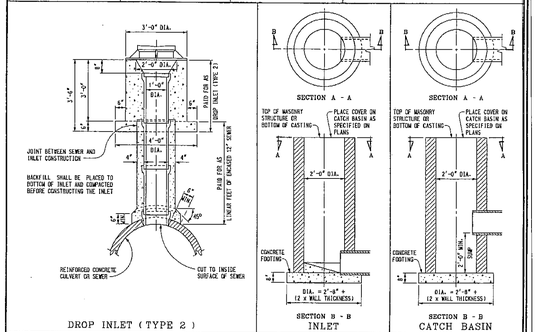


MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

DRAINAGE STRUCTURES

12-21-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE	R-1-D	SHEET 2 OF 5

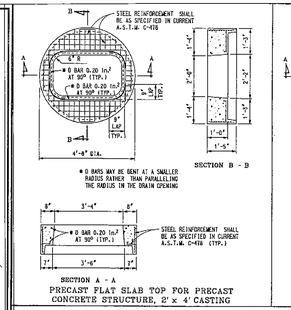


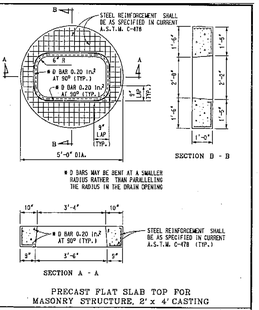


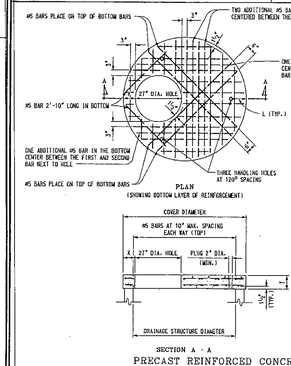
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

DRAINAGE STRUCTURES

12-21-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE	R-1-D	SHEET 3 OF 5







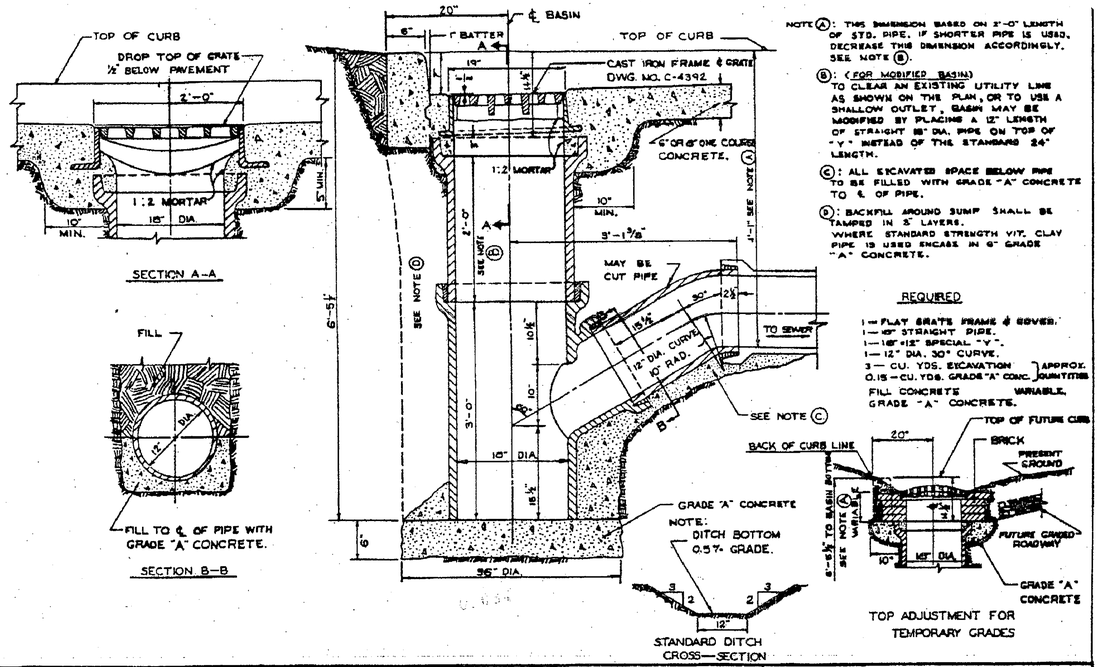
SECTION A - A
PRECAST REINFORCED CONCRETE FLAT SLAB TOP

TABLE OF DIMENSIONS					
STRUCTURE DIAMETER	COVER DIAMETER	T	K	L	#5 BAR MAXIMUM SPACING (BOTTOM EACH WAY)
4'-0"	58"	8"	5"	8"	6"
5'-0"	72"	8"	7"	9"	7"
6'-0"	86"	8"	8"	10"	6"

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

DRAINAGE STRUCTURES

12-21-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE	R-1-D	SHEET 4 OF 5

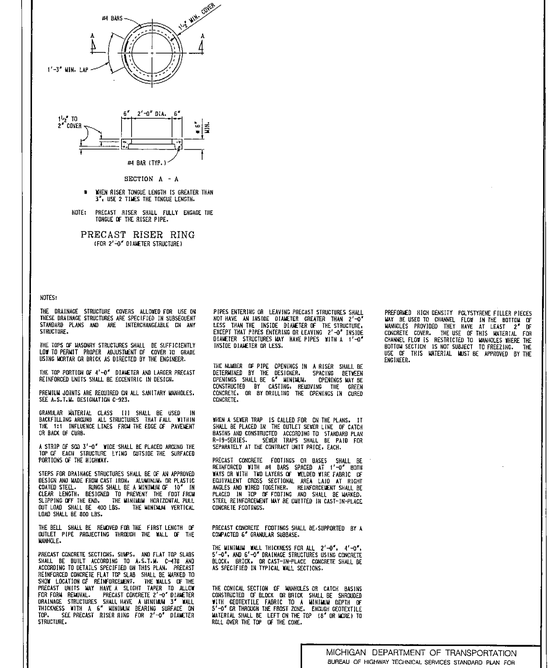


		DESIGNED BY	APPROVED	CITY OF DETROIT
		DRAWN BY G. Clark	ENGINEER OF STREETS	CITY ENGINEERING DEPARTMENT
6	CHANGE CONC. TO GR "A"	TRACED BY	ASST. CITY ENGINEER	BUREAU OF STREETS AND HIGHWAYS
5	CHANGE TO 2'-0" DIA.	CHECKED BY	CITY ENGINEER	DETAIL: STANDARD NO. 11
NO.	REVISIONS	DATE	BY	

STANDARD DESIGN
18" × 12" SPECIAL "Y" CATCH BASIN
TO BE USED UNLESS DIRECTED OTHERWISE BY FIELD ENGINEER

BOOK NO. | SCALE 1"=1'-0" | DWG. NO. C-4388
PAGE NO. | DATE R-19-66

ALTERNATE DETAILS FOR MANHOLES ONLY



NOTES:

THE DRAINAGE STRUCTURE COVERS ALLOWED FOR USE ON THESE DRAINAGE STRUCTURES ARE SPECIFIED IN SUBSEQUENT STANDARD PLANS AND ARE INTERCHANGEABLE ON ANY STRUCTURE.

RING TOPS OF MASONRY STRUCTURES SHALL BE SUFFICIENTLY LOW TO PERMIT PROPER ADJUSTMENT OF COVER TO GRADE USING MORTAR OR BRICK AS DIRECTED BY THE ENGINEER.

THE TOP PORTION OF 4'-0" DIAMETER AND LARGER PRECAST REINFORCED UNITS MAY BE ECCENTRIC IN DESIGN.

PREMIUM JOINTS ARE REQUIRED ON ALL SANITARY MANHOLES. SEE A.S.T.M. DESIGNATION C-923.

GRANULAR MATERIAL CLASS III SHALL BE USED IN BACKFILLING AROUND ALL STRUCTURES THAT FALL WITHIN THE 1:1 INFLUENCE LINES FROM THE EDGE OF PAVEMENT OR BACK OF CURB.

A STRIP OF SOD 3'-0" WIDE SHALL BE PLACED AROUND THE TOP OF EACH STRUCTURE LYING OUTSIDE THE SURFACED PORTIONS OF THE R.O.W.

STEPS FOR DRAINAGE STRUCTURES SHALL BE OF AN APPROVED DESIGN AND MADE FROM CAST IRON, ALUMINUM, OR PLASTIC COATED STEEL. RUNGS SHALL BE A MINIMUM OF 10" IN CLEAR LENGTH, RECESSED TO PREVENT THE FOOT FROM SLIPPING OFF THE ENDS. THE MINIMUM HORIZONTAL PULL OUT LOAD SHALL BE 400 LBS. THE MINIMUM VERTICAL LOAD SHALL BE 800 LBS.

THE BELL SHALL BE REAMED FOR THE FIRST LENGTH OF OUTLET PIPE PROJECTING THROUGH THE WALL OF THE MANHOLE.

PRECAST CONCRETE SECTIONS, SUMPS, AND FLAT TOP SLABS SHALL BE BUILT ACCORDING TO A.S.T.M. C-478 AND ACCORDING TO DETAILS SPECIFIED ON THIS PLAN. PRECAST REINFORCED CONCRETE FLAT TOP SLAB SHALL BE MARKED TO SHOW LOCATION OF REINFORCEMENT. THE WALLS OF THE PRECAST UNITS MAY HAVE A SLIGHT TAPER TO ALLOW FOR FORM REMOVAL. PRECAST CONCRETE 2'-0" DIAMETER DRAINAGE STRUCTURES SHALL HAVE A MINIMUM 3" WALL THICKNESS WITH A 6" MINIMUM BEARING SURFACE ON TOP. SEE PRECAST RISER RING FOR 2'-0" DIAMETER STRUCTURE.

PIPES ENTERING OR LEAVING PRECAST STRUCTURES SHALL NOT HAVE AN INSIDE DIAMETER GREATER THAN 2'-0" LESS THAN THE INSIDE DIAMETER OF THE STRUCTURE, EXCEPT THAT PIPES ENTERING OR LEAVING 2'-0" INSIDE DIAMETER STRUCTURES MAY HAVE PIPES WITH A 1'-0" INSIDE DIAMETER OR LESS.

THE NUMBER OF PIPE OPENINGS IN A RISER SHALL BE DETERMINED BY THE DESIGNER. SPACING BETWEEN OPENINGS SHALL BE 6" MINIMUM. OPENINGS MAY BE CONSTRUCTED BY CASTING, REMOVING THE GREEN CONCRETE, OR BY DRILLING THE OPENINGS IN CURED CONCRETE.

WHEN A SEWER TRAP IS CALLED FOR ON THE PLANS, IT SHALL BE PLACED IN THE OUTLET SEWER LINE OF CATCH BASINS AND CONSTRUCTED ACCORDING TO STANDARD PLAN R-19-SERIES. SEWER TRAPS SHALL BE PAID FOR SEPARATELY AT THE CONTRACT UNIT PRICE, EACH.

PRECAST CONCRETE FOOTINGS OR BASES SHALL BE REINFORCED WITH #4 BARS SPACED AT 1'-0" BOTH WAYS OR WITH TWO LAYERS OF WELDED WIRE FABRIC OF EQUIVALENT CROSS SECTIONAL AREA LAID AT RIGHT ANGLES AND WIRED TOGETHER. REINFORCEMENT SHALL BE PLACED IN TOP OF FOOTING AND SHALL BE MARKED. STEEL REINFORCEMENT MAY BE OMITTED IN CAST-IN-PLACE CONCRETE FOOTINGS.

PRECAST CONCRETE FOOTINGS SHALL BE SUPPORTED BY A COMPACTED 6" GRANULAR SUBBASE.

THE MINIMUM WALL THICKNESS FOR ALL 2'-0", 4'-0", 5'-0", AND 6'-0" DRAINAGE STRUCTURES USING CONCRETE BLOCK, BRICK, OR CAST-IN-PLACE CONCRETE SHALL BE AS SPECIFIED IN TYPICAL WALL SECTIONS.

THE CONICAL SECTION OF MANHOLES OR CATCH BASINS CONSTRUCTED OF BLOCK OR BRICK SHALL BE SHROUDED WITH GEOTEXTILE FABRIC TO A MINIMUM DEPTH OF 5'-0" OR THROUGH THE FROST ZONE. ENCLOSE GEOTEXTILE MATERIAL SHALL BE LEFT ON THE 18" OR MORE TO ROLL OVER THE TOP OF THE CONE.

PREFORMED HIGH DENSITY POLYSTYRENE FILLER PIECES MAY BE USED TO CHANNEL FLOW IN THE BOTTOM OF MANHOLES PROVIDED THEY HAVE AT LEAST 2" OF CONCRETE COVER. THE USE OF THIS MATERIAL FOR CHANNEL FLOW IS RESTRICTED TO MANHOLES WHERE THE BOTTOM SECTION IS NOT SUBJECT TO FREEZING. THE USE OF THIS MATERIAL MUST BE APPROVED BY THE ENGINEER.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

DRAINAGE STRUCTURES

12-21-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE	R-1-D	SHEET 5 OF 5

DIWSD SYSTEM ACCEPTANCE

DESIGN REVIEWED: DLS M. Nielsen	DATE 3-18-04
HEAD ENGR-DES.	DATE 3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO.	L6*
MDEQ	D JOB*
MDPH	
R/W*	DRUG/RSF* SEWER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN 48091
(586) 756-1070

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-8012 FAX (313) 963-7196 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: SPECIAL DETAILS
SHEET NO. C4.23

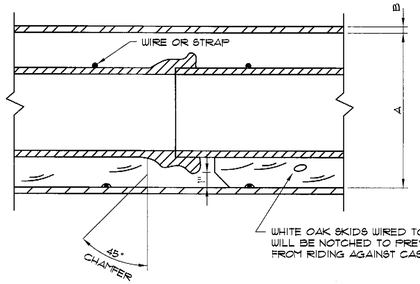
2332-15

DIA. OF WATER MAIN	MIN. I.D. "A"	ROAD CROSSING	RAILROAD CROSSING
		MIN. "B"	MIN. "B"
6"	14"	.250	.312
8"	16"	.250	.375
12"	20"	.250	.438
16"	24"	.375	.500
20"	30"	.375	.500
24"	36"	.375	.500

CASING PIPE SHALL BE SPIRAL WELDED STEEL PIPE A.S.T.M. A-252, GR. 2

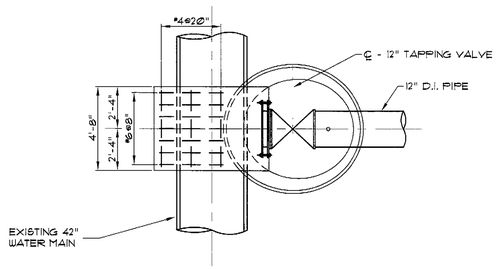
NOTES:

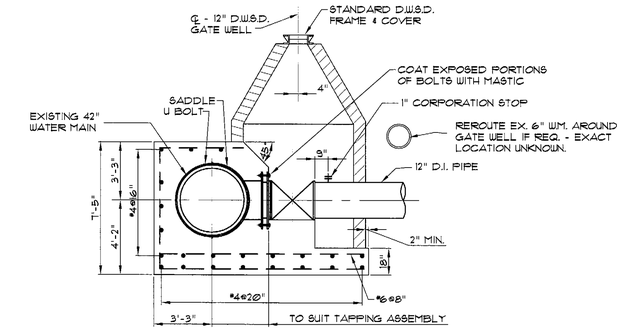
1. NO WATER SHALL BE USED IN BORING UNDER RAILROADS.
2. MAINTAIN MIN. OF 5'-6" OF COVER BETWEEN BASE OF RAIL & TOP OF CASING.
3. THE ENDS OF THE CASING SHALL BE SUITABLY PROTECTED AGAINST THE ENTRANCE OF FOREIGN MATERIAL, BUT SHALL NOT BE TIGHTLY SEALED.



STANDARD CASING SECTION

SCALE: NONE



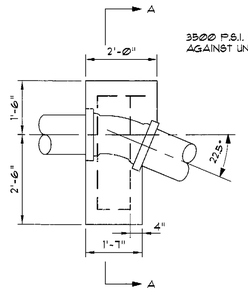


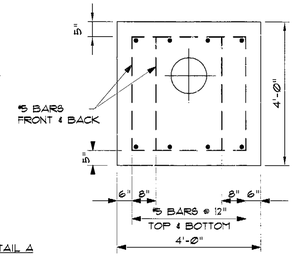
42"x12" PRESSURE TAP VALVE & WELL ASSEMBLY REINFORCED CONCRETE ENCASEMENT

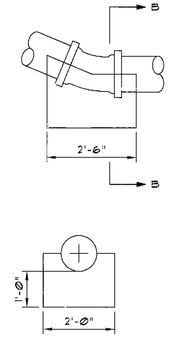
GENERAL NOTES:

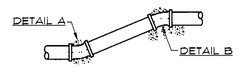
MAINTAIN AT LEAST ONE FOOT CLEAR BETWEEN ALL CROSSING UNDERGROUND UTILITIES.

PROVIDE BRICK BULKHEADS AT ALL SEWER STUB ENDINGS AND RECORD THE "AS BUILT" LOCATIONS.



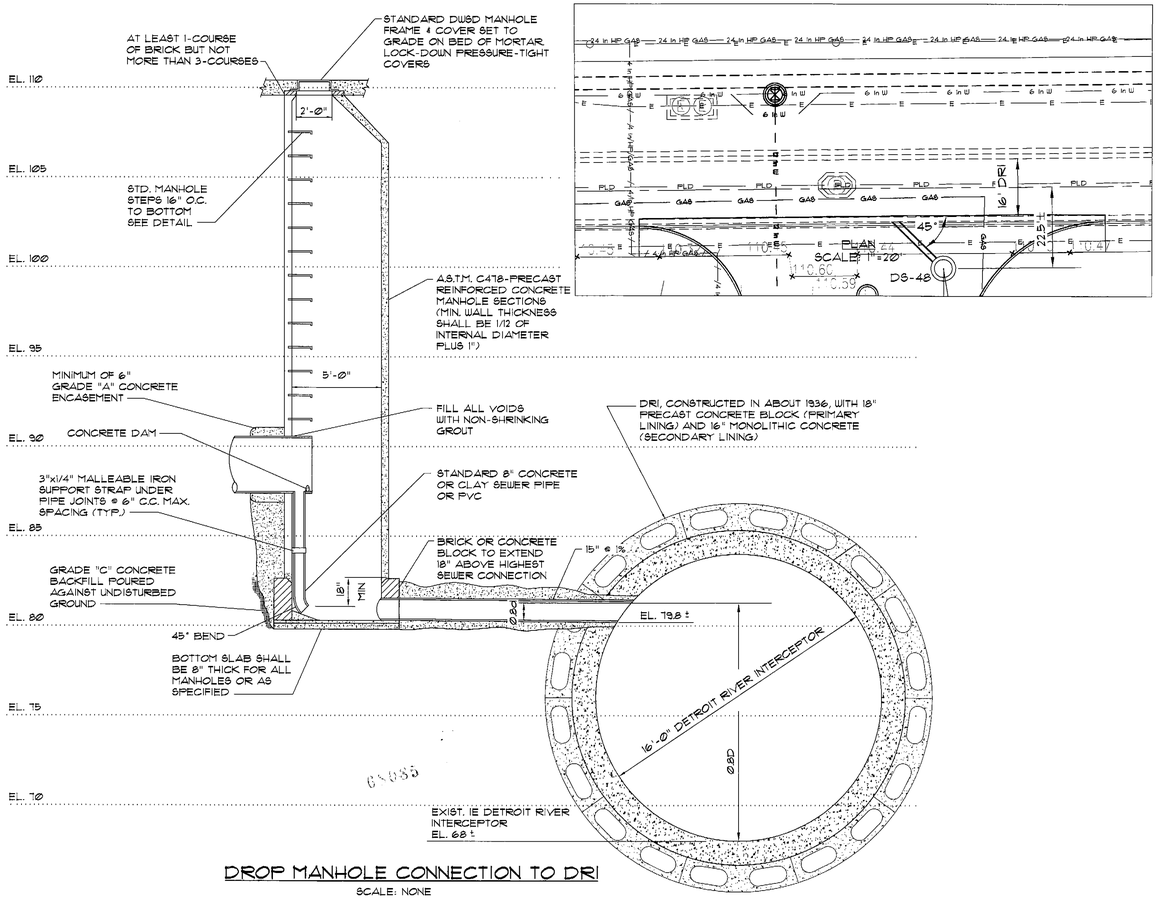






DETAIL B

ANCHORAGE FOR 12"-22.5° VERTICAL BENDS

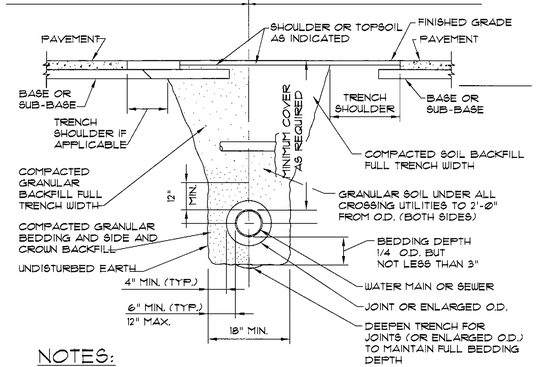


DROP MANHOLE CONNECTION TO DRI

SCALE: NONE

CONDITIONS FOR WATER MAINS & SEWERS UNDER OR NEAR PAVEMENTS (TR 'A')

CONDITIONS FOR WATER MAINS & SEWERS NOT UNDER OR NEAR PAVEMENT (TR 'B')

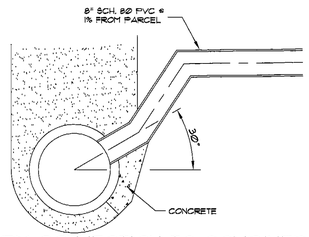


NOTES:

1. REMOVE EXISTING PAVEMENT WHEN NECESSARY TO PROVIDE A TEMPORARY TRENCH SHOULDER OF 1'-6" MIN. AND REPLACE AFTER BACKFILLING.
2. PAVEMENT INCLUDES CONCRETE, BITUMINOUS, OR AGGREGATE SURFACES INDICATED AS NEW, FUTURE, EXISTING TO REMAIN, OR EXISTING TO BE REPLACED. SURFACES INCLUDE ROADS, WALKS, PADS, ETC.
3. BACKFILL "NOT UNDER OR NEAR PAVEMENTS" APPLIES ONLY WHERE TYPE OF TRENCH AND/OR CLEARANCE TO PAVEMENT IS SUCH THAT THE TRENCH SHOULDER IS 1'-6" MIN. PRIOR TO ANY REMOVAL OF EXISTING PAVEMENT.

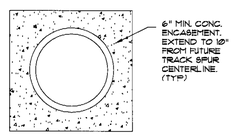
WATER MAIN AND SEWER TRENCH DETAIL

SCALE: NONE



SANITARY CONNECTION TO COMBINED SEWER DETAIL

SCALE: NONE



CONCRETE ENCASEMENT DETAIL

SCALE: NONE

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS M. Kudsian	DATE 3-18-04
HEAD ENGR.-DBS. Shant Ord	3-30-04
CONSTRUCTION INSPECTED:	
HEAD ENGR.-FLD.	
PERMIT NO.	L.P.
MDEQ	D JOB#
MDPH	
R/U#	DRAIN/REP SEWER
	WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY
CHECKED BY
APPROVED BY

Iafrate ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-0612 FAX (313) 963-2186 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING

SHEET TITLE: MISC. WATER & SEWER DETAILS

DATE: 3-16-04

SHEET NO. C4.40

2332-16

65056

DWSD SYSTEM ACCEPTANCE	
DESIGN REVIEWED: DLS MKu...	DATE 3-5-14
HEAD ENGR-DES. Richard Desh	3-30-14
CONSTRUCTION INSPECTED:	
HEAD ENGR-FLD.	
PERMIT NO. MDEQ MDPH	L.S.# D JOB.#
R/U#	DRWG/REF# INCLUDE WATER

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

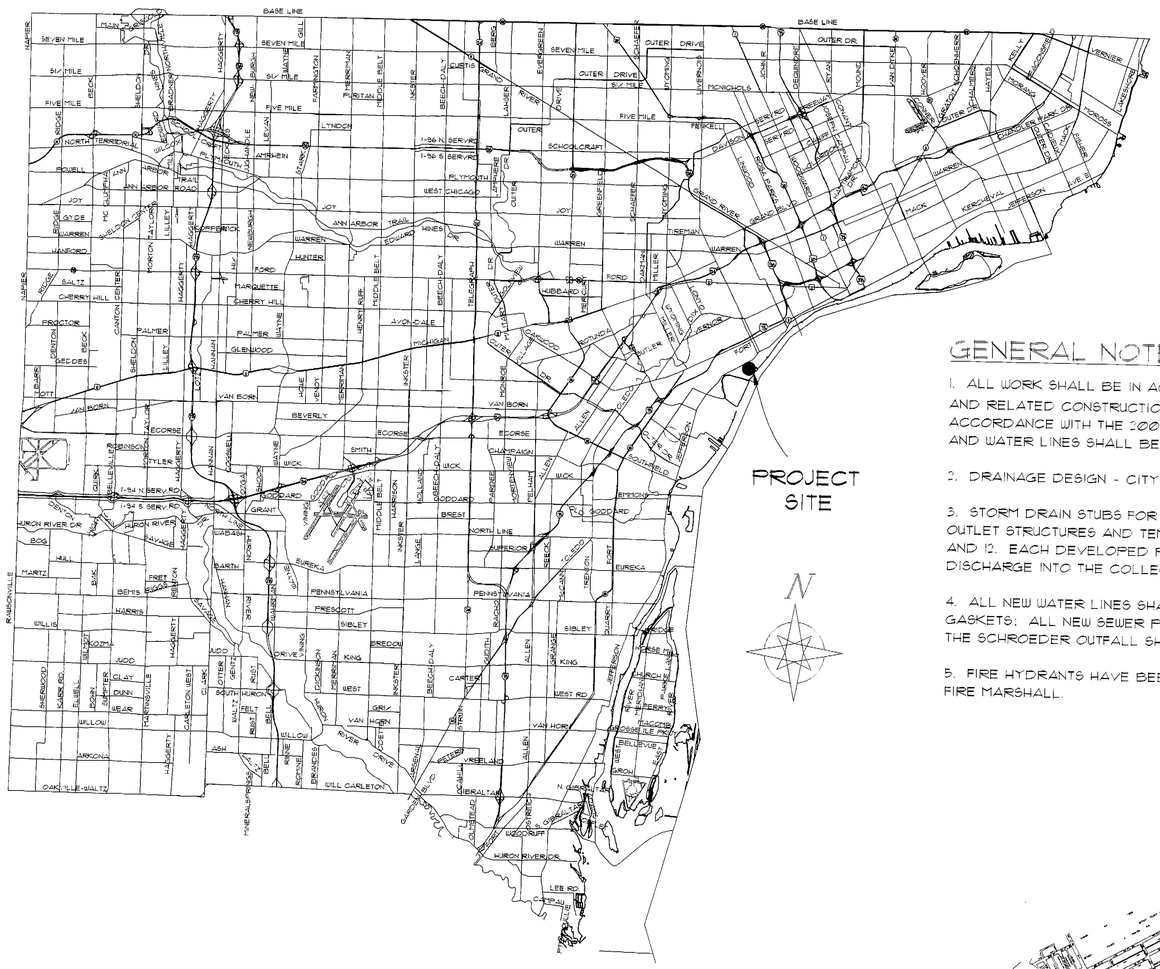
TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
949 E. LAFAYETTE SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2186 WWW.TYJT.COM

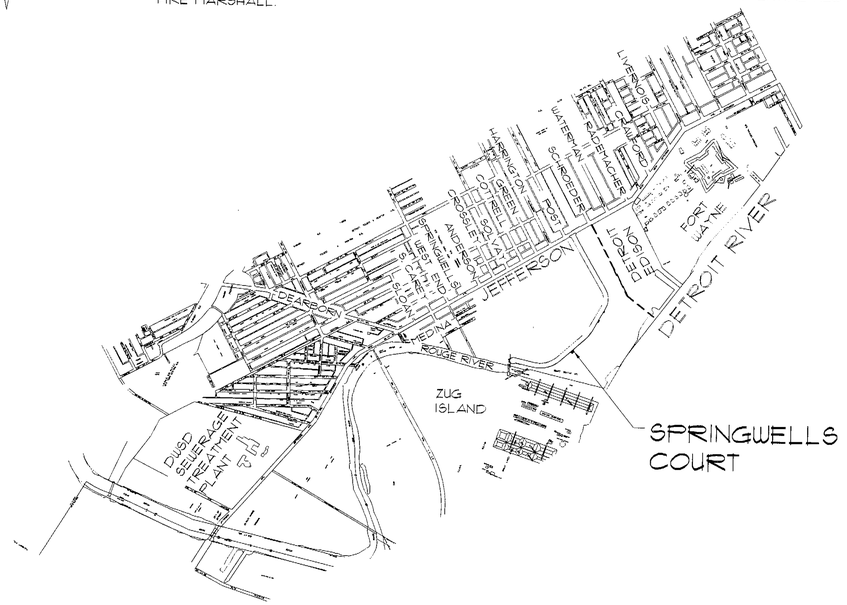
PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: DWSD MISCELLANEOUS DETAILS
SHEET NO.: C4.30

2332-17

CITY OF DETROIT
ECONOMIC DEVELOPMENT CORPORATION

PAVING OF SPRINGWELLS COURT
SOUTH OF JEFFERSON AVE.





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C1.11	SURVEY CONTROL PLAN
C1.20	SITE PLAN
C1.30	TYPICAL CROSS SECTIONS
C1.40	SOIL EROSION CONTROL PLAN
C1.50	ALIGNMENT PLAN
C2.10	UTILITY PLAN - YELLOW FREIGHT PROPERTY
C2.11	UTILITY PLAN - 3+50 TO 11+00
C2.12	UTILITY PLAN - 11+00 TO 20+60
C2.13	UTILITY PLAN - 20+60 TO 30+00
C2.14	UTILITY PLAN - 30+00 TO JEFFERSON
C3.11	PLAN & PROFILES - 3+50 TO 16+00
C3.12	PLAN & PROFILES - 16+00 TO 28+50
C3.13	PLAN & PROFILES - JEFFERSON TO 28+50
C3.22	RAILROAD PROFILES
C3.31	WATER MAIN PROFILE YELLOW FREIGHT PROP.
C3.41	MISC. PROFILES
C3.42	MISC. PROFILES
C3.51	DETAILED GRADE AREA 3+50 TO 6+50
C3.52	DETAILED GRADE AREA 6+50 TO 11+50
C3.53	DETAILED GRADE AREA 14+20 TO 20+30
C3.54	DETAILED GRADE AREA 31+00 TO JEFFERSON
C4.01	STRUCTURE TABLES
C4.10	SCHROEDER OUTFALL CHAMBERS
C4.20	STANDARD DETAILS
C4.21	SPECIAL DETAILS
C4.22	SPECIAL DETAILS
C4.23	SPECIAL DETAILS
C4.30	DWSD MISC. DETAILS
C4.40	SEWER DETAILS
C5.10	PAVEMENT MARKING AND SIGNING PLAN

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1	LEGEND
2	GENERAL INFORMATION
3	STREET LIGHTING - JEFFERSON TO 31+00
4	STREET LIGHTING - 19+00 TO 31+00
5	STREET LIGHTING - CUL-DE-SAC TO 19+00

GENERAL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY OF DETROIT'S CITY ENGINEERING DIVISION, DEPARTMENT OF PUBLIC WORKS "STANDARD SPECIFICATIONS FOR PAVING AND RELATED CONSTRUCTION" AS WELL AS THEIR STANDARD PLANS FOR STREET AND ALLEY CONSTRUCTION. WORK NOT COVERED IN THESE DOCUMENTS SHALL BE IN ACCORDANCE WITH THE 2003 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND SPECIAL PROVISIONS. IN ADDITION, ALL WORK WITH SEWERS, DRAINAGE STRUCTURES, AND WATER LINES SHALL BE IN ACCORDANCE WITH THE STANDARD PLANS AND SPECIFICATIONS OF THE DETROIT DEPARTMENT OF WATER AND SEWERAGE (DWSD).

2. DRAINAGE DESIGN - CITY OF DETROIT 10 YEAR STORM EVENT. DESIGN SEWER VELOCITY MINIMUM IS 3 FPS AND THE MAXIMUM IS 7 FPS.

3. STORM DRAIN STUBS FOR EACH PARCEL HAVE BEEN PROVIDED FOR FUTURE CONNECTION BY PROPERTY OWNERS AS INDICATED ON DRAWING C1.20. TEMPORARY BASIN OUTLET STRUCTURES AND TEMPORARY DETENTION PONDS, WHICH WILL BE MAINTAINED BY THE RESPECTIVE PARCEL OWNERS UNTIL THEY ARE DEVELOPED, FOR PARCELS 9, 10, AND 12. EACH DEVELOPED PARCEL WILL BE REQUIRED TO DESIGN AND CONSTRUCT PERMANENT STORAGE FACILITIES TO RESTRICT AND CLEAN STORM EFFLUENT BEFORE DISCHARGE INTO THE COLLECTOR SEWER IN THE PUBLIC ROW. PERMITS WILL BE REQUIRED FROM THE CITY OF DETROIT'S DEPARTMENT OF WATER AND SEWERAGE (DWSD).

4. ALL NEW WATER LINES SHALL BE DUCTILE IRON, CLASS 56 WITH 8 MIL POLYETHYLENE WRAP AS PER DWSD STANDARDS; ALL NEW WATER LINES SHALL HAVE VITON (FKM) GASKETS; ALL NEW SEWER PIPE FOR THE COMBINED SEWER SHALL BE ASTM C-76, CLASS IV OR V (UNDER FUTURE RR SPURS); AND THE STORM WATER PIPING CONNECTION TO THE SCHROEDER OUTFALL SHALL BE WATER TIGHT/LEAK PROOF SMOOTH LINED, CORRUGATED, HIGH-DENSITY POLYETHYLENE (ENCASED IN CONCRETE UNDER RR SPURS).

5. FIRE HYDRANTS HAVE BEEN PLACED AT 300' NOMINAL SPACING ALONG THE ENTIRE NEW PUBLIC RIGHT OF WAY AND HAVE BEEN APPROVED BY THE CITY OF DETROIT'S FIRE MARSHALL.

3 WORKING DAYS
BEFORE YOU DIG CALL MISS DIG®
1-800-482-7171
For free location of public utility lines.
ALTERNATE NUMBER (810) MISS-DIG
COLOR CODES FOR UTILITY LOCATING:

Yellow	OIL & GAS	Blue	WATER
Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
		Pink	SURVEYING

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES - CALL MISS DIG

82757

6-03-04

DESIGN/BUILD SPRINGWELLS COURT
SOUTH OF JEFFERSON AVENUE

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

Tucker, Young, Jackson, Tull Inc.
Consulting Engineers
565 E. LARNED, SUITE #300
DETROIT, MI. 48226
(313) 963-0612/FAX (313) 963-2156

LOCAL AUTHORITY APPROVAL
CITY OF DETROIT
CITY ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS

APPROVED BY: _____ ENGINEER OF STREETS _____ DATE

APPROVED BY: _____ HEAD ENGINEER _____ DATE

APPROVED BY: _____ CITY ENGINEER _____ DATE

PREPARED UNDER SUPERVISION OF

ALAN J. SCHNEIDER
REGISTERED PROFESSIONAL ENGINEER

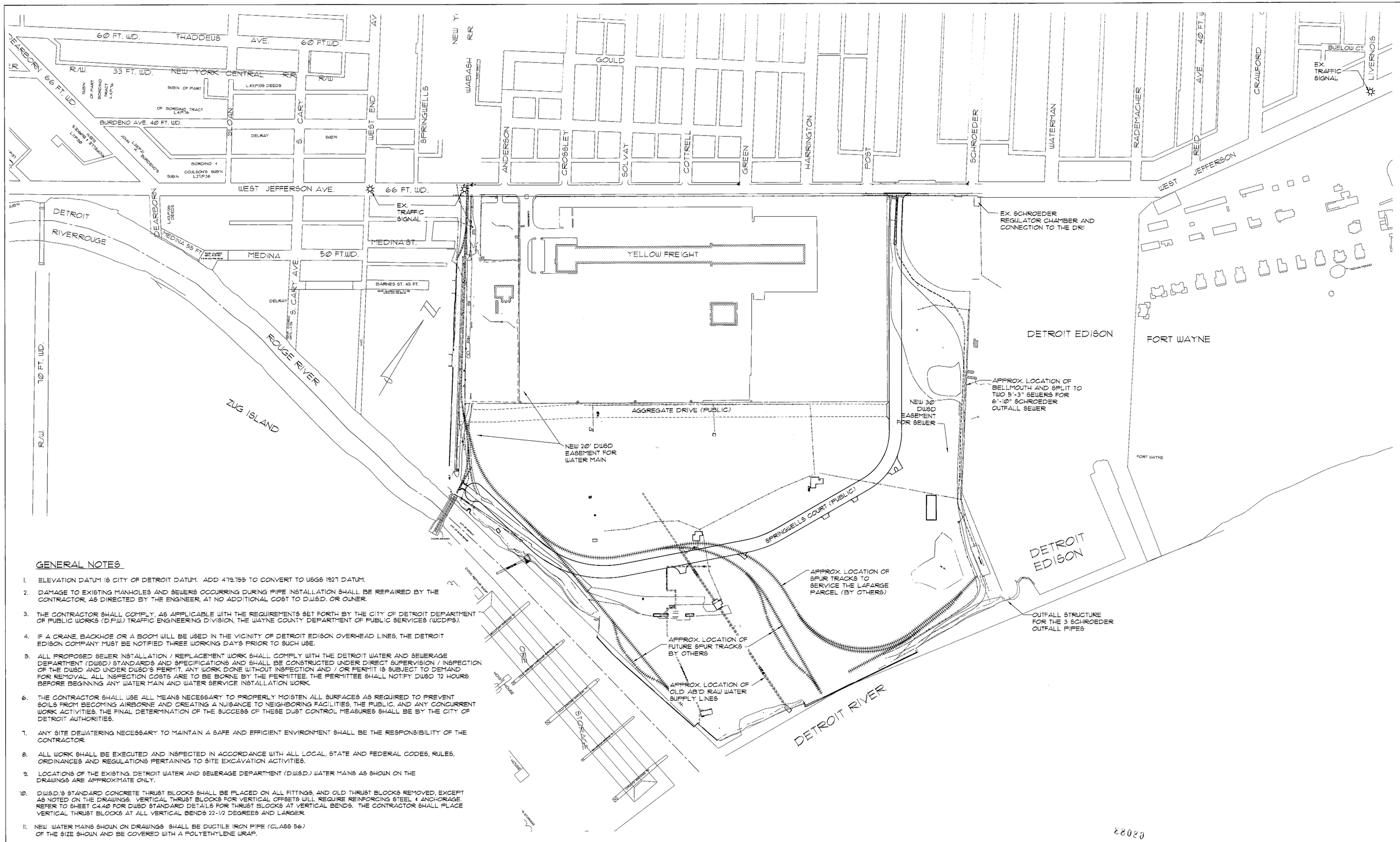
TUCKER, YOUNG, JACKSON, TULL INC.
ORGANIZATION

565 LARNED, SUITE 300
DETROIT, MICHIGAN 48226
ADDRESS

(SEAL)

SHEET NO. 1

2333-18



GENERAL NOTES

1. ELEVATION DATUM IS CITY OF DETROIT DATUM. ADD 479.755 TO CONVERT TO USGS 1927 DATUM.
2. DAMAGE TO EXISTING MANHOLES AND SEWERS OCCURRING DURING PIPE INSTALLATION SHALL BE REPAIRED BY THE CONTRACTOR, AS DIRECTED BY THE ENGINEER, AT NO ADDITIONAL COST TO D.W.S.D. OR OWNER.
3. THE CONTRACTOR SHALL COMPLY, AS APPLICABLE WITH THE REQUIREMENTS SET FORTH BY THE CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS (D.P.W.) TRAFFIC ENGINEERING DIVISION, THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES (WCDPS).
4. IF A CRANE, BACKHOE OR A BOOM WILL BE USED IN THE VICINITY OF DETROIT EDISON OVERHEAD LINES, THE DETROIT EDISON COMPANY MUST BE NOTIFIED THREE WORKING DAYS PRIOR TO SUCH USE.
5. ALL PROPOSED SEWER INSTALLATION / REPLACEMENT WORK SHALL COMPLY WITH THE DETROIT WATER AND SEWERAGE DEPARTMENT (DWSD) STANDARDS AND SPECIFICATIONS AND SHALL BE CONSTRUCTED UNDER DIRECT SUPERVISION / INSPECTION OF THE DWSD AND UNDER DWSD'S PERMIT. ANY WORK DONE WITHOUT INSPECTION AND / OR PERMIT IS SUBJECT TO DEMAND FOR REMOVAL. ALL INSPECTION COSTS ARE TO BE BORNE BY THE PERMITTEE. THE PERMITTEE SHALL NOTIFY DWSD 72 HOURS BEFORE BEGINNING ANY WATER MAIN AND WATER SERVICE INSTALLATION WORK.
6. THE CONTRACTOR SHALL USE ALL MEANS NECESSARY TO PROPERLY MOISTEN ALL SURFACES AS REQUIRED TO PREVENT SOILS FROM BECOMING AIRBORNE AND CREATING A NUISANCE TO NEIGHBORING FACILITIES, THE PUBLIC, AND ANY CONCURRENT WORK ACTIVITIES. THE FINAL DETERMINATION OF THE SUCCESS OF THESE DUST CONTROL MEASURES SHALL BE BY THE CITY OF DETROIT AUTHORITIES.
7. ANY SITE DEWATERING NECESSARY TO MAINTAIN A SAFE AND EFFICIENT ENVIRONMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
8. ALL WORK SHALL BE EXECUTED AND INSPECTED IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL CODES, RULES, ORDINANCES AND REGULATIONS PERTAINING TO SITE EXCAVATION ACTIVITIES.
9. LOCATIONS OF THE EXISTING, DETROIT WATER AND SEWERAGE DEPARTMENT (D.W.S.D.) WATER MAINS AS SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY.
10. D.W.S.D.'S STANDARD CONCRETE THRUST BLOCKS SHALL BE PLACED ON ALL FITTINGS, AND OLD THRUST BLOCKS REMOVED, EXCEPT AS NOTED ON THE DRAWINGS. VERTICAL THRUST BLOCKS FOR VERTICAL OFFSETS WILL REQUIRE REINFORCING STEEL & ANCHORAGE. REFER TO SHEET C4.40 FOR DWSD STANDARD DETAILS FOR THRUST BLOCKS AT VERTICAL BENDS. THE CONTRACTOR SHALL PLACE VERTICAL THRUST BLOCKS AT ALL VERTICAL BENDS 22-1/2 DEGREES AND LARGER.
11. NEW WATER MAINS SHOWN ON DRAWINGS SHALL BE DUCTILE IRON PIPE (CLASS 56) OF THE SIZE SHOWN AND BE COVERED WITH A POLYETHYLENE WRAP.
12. THE CONTRACTOR SHALL PROVIDE SHEETING AND BRACING TO PROTECT ADJACENT PAVEMENT, CURBS, SIDEWALKS, PIPELINES, CONDUITS, THE WORK AND PERSONNEL. THE CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR ANY AND ALL DAMAGES AND INJURIES RESULTING FROM A FAILURE TO PROVIDE ADEQUATE SHEETING AND BRACING.
13. ALL TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
14. COORDINATE ALL EXCAVATION AND ACTIVITIES IN THE VICINITY OF THE GAS PIPELINES WITH DOME PETROLEUM.

ISSUE	BY	CH'K'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 200'

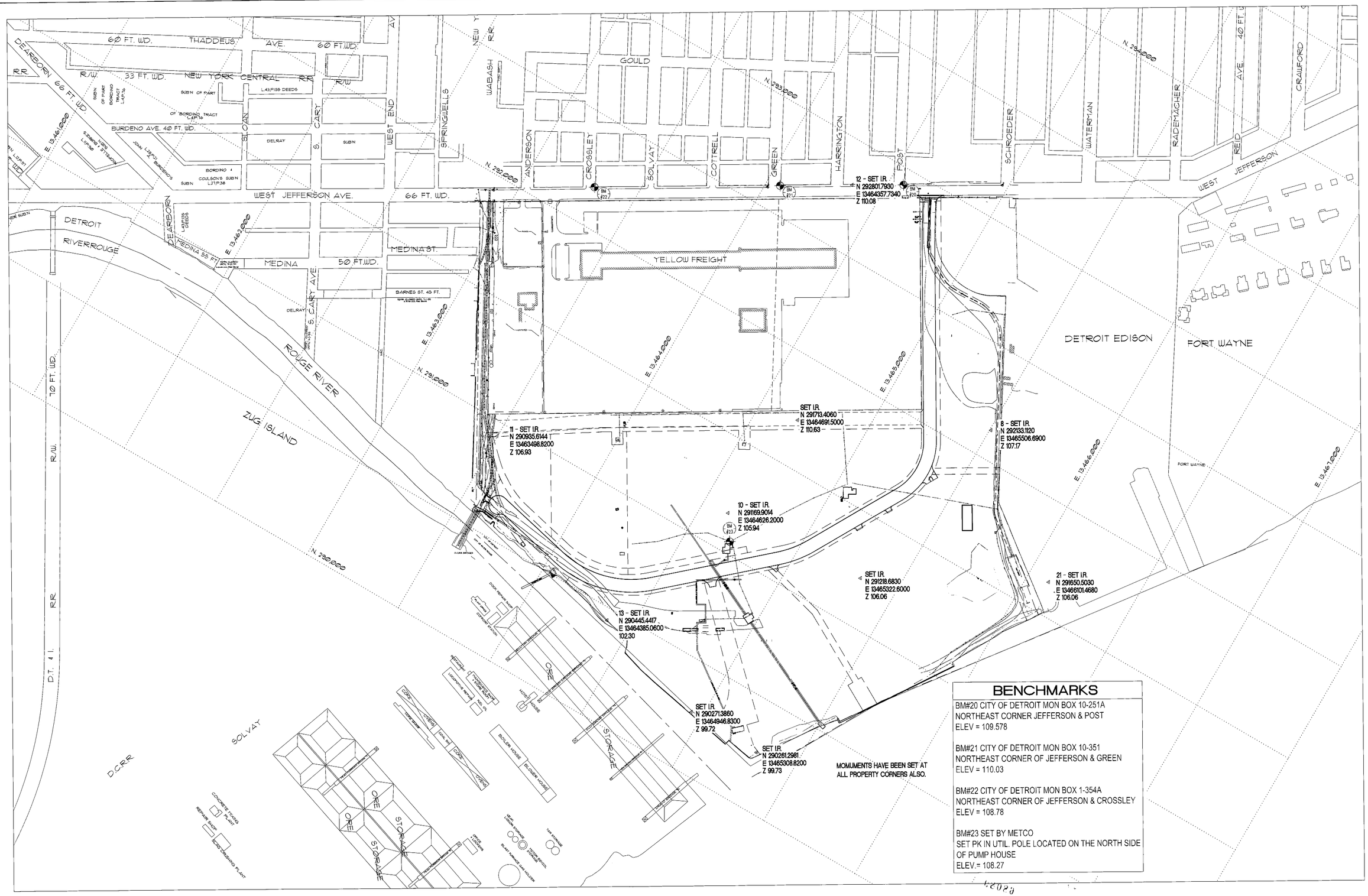
DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
969 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2156 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: GENERAL PLAN OF SITE
SHEET NO.: C 1.10

2.332 - 1.9



BENCHMARKS

BM#20 CITY OF DETROIT MON BOX 10-251A
NORTHEAST CORNER JEFFERSON & POST
ELEV = 109.578

BM#21 CITY OF DETROIT MON BOX 10-351
NORTHEAST CORNER OF JEFFERSON & GREEN
ELEV = 110.03

BM#22 CITY OF DETROIT MON BOX 1-354A
NORTHEAST CORNER OF JEFFERSON & CROSSLEY
ELEV = 108.78

BM#23 SET BY METCO
SET PK IN UTIL. POLE LOCATED ON THE NORTH SIDE OF PUMP HOUSE
ELEV.= 108.27

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: 1" = 200'

DESIGNED BY
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APPROVED BY

Iafrate
ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
869 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2186 WWW.TYJT.COM

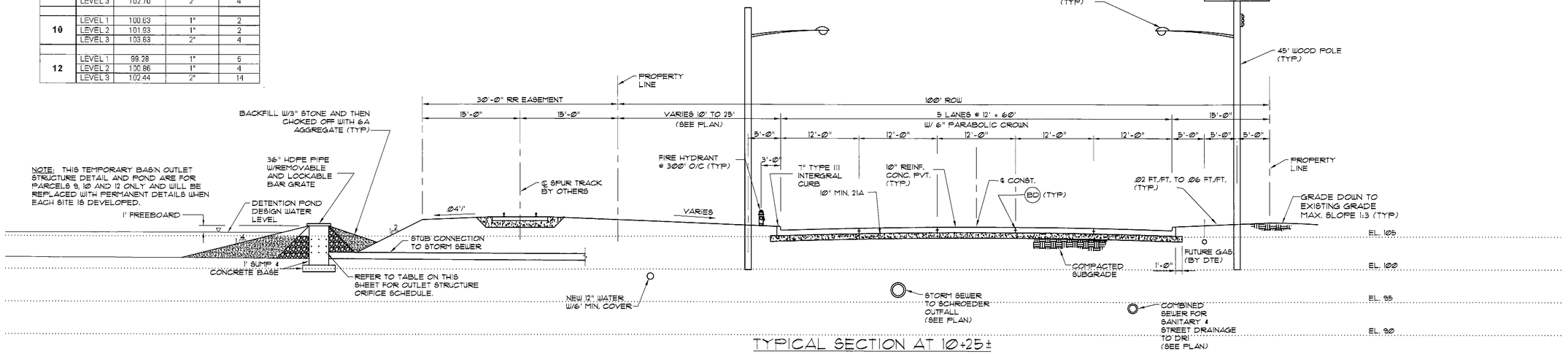
PROJECT: SPRINGWELLS COURT PAVING
SHEET TITLE: SURVEY CONTROL PLAN

DATE: 3-16-04
SHEET NO.: C 1.11

~~3232~~ - 20

TEMPORARY STORM WATER PONDS
SCHEDULE OF OUTLET STRUCTURES

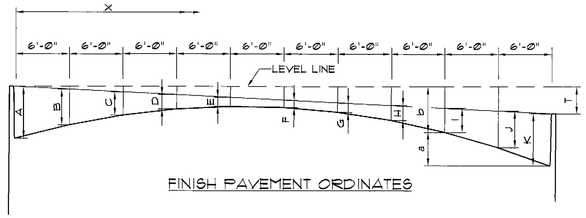
PARCEL		ORIFICE ELEVATION	ORIFICE DIAMETER	No. OF ORIFICES
9	LEVEL 1	100.20	1"	2
	LEVEL 2	101.60	1"	2
	LEVEL 3	102.70	2"	4
10	LEVEL 1	100.63	1"	2
	LEVEL 2	101.93	1"	2
	LEVEL 3	103.63	2"	4
12	LEVEL 1	99.28	1"	5
	LEVEL 2	100.86	1"	4
	LEVEL 3	102.44	2"	14



TYPICAL SECTION AT 10+25±

(SECTIONS 4+50 TO 37+28 SIMILAR - SEE PLAN)

SCALE: 1/8"=1'-0"



FINISH PAVEMENT ORDINATES

VERTICAL ORDINATES FOR PAVING SECTION (FEET)

T (CURB OFFSET)		0.0		0.1		0.2		0.3		0.4		0.5	
	X	a	b	a	b	a	b	a	b	a	b	a	b
A (0.583)	0'	0.000	0.583	0.100	0.583	0.200	0.583	0.300	0.583	0.400	0.583	0.500	0.583
B (0.403)	6'	0.180	0.403	0.270	0.413	0.360	0.423	0.450	0.433	0.540	0.443	0.630	0.453
C (0.263)	12'	0.320	0.263	0.400	0.283	0.480	0.303	0.560	0.323	0.640	0.343	0.720	0.363
D (0.163)	18'	0.420	0.163	0.490	0.193	0.560	0.223	0.630	0.253	0.700	0.283	0.770	0.313
E (0.103)	24'	0.480	0.103	0.540	0.143	0.600	0.183	0.660	0.223	0.720	0.263	0.780	0.303
F (0.083)	30'	0.500	0.083	0.550	0.133	0.600	0.183	0.650	0.233	0.700	0.283	0.750	0.333
G (0.103)	36'	0.480	0.103	0.520	0.163	0.560	0.223	0.600	0.283	0.640	0.343	0.680	0.403
H (0.163)	42'	0.420	0.163	0.450	0.233	0.480	0.303	0.510	0.373	0.540	0.443	0.570	0.513
I (0.263)	48'	0.320	0.263	0.340	0.343	0.360	0.423	0.380	0.503	0.400	0.583	0.420	0.663
J (0.403)	54'	0.180	0.403	0.190	0.493	0.200	0.583	0.210	0.673	0.220	0.763	0.230	0.853
K (0.583)	60'	0.000	0.583	0.000	0.683	0.000	0.783	0.000	0.883	0.000	0.983	0.000	1.083

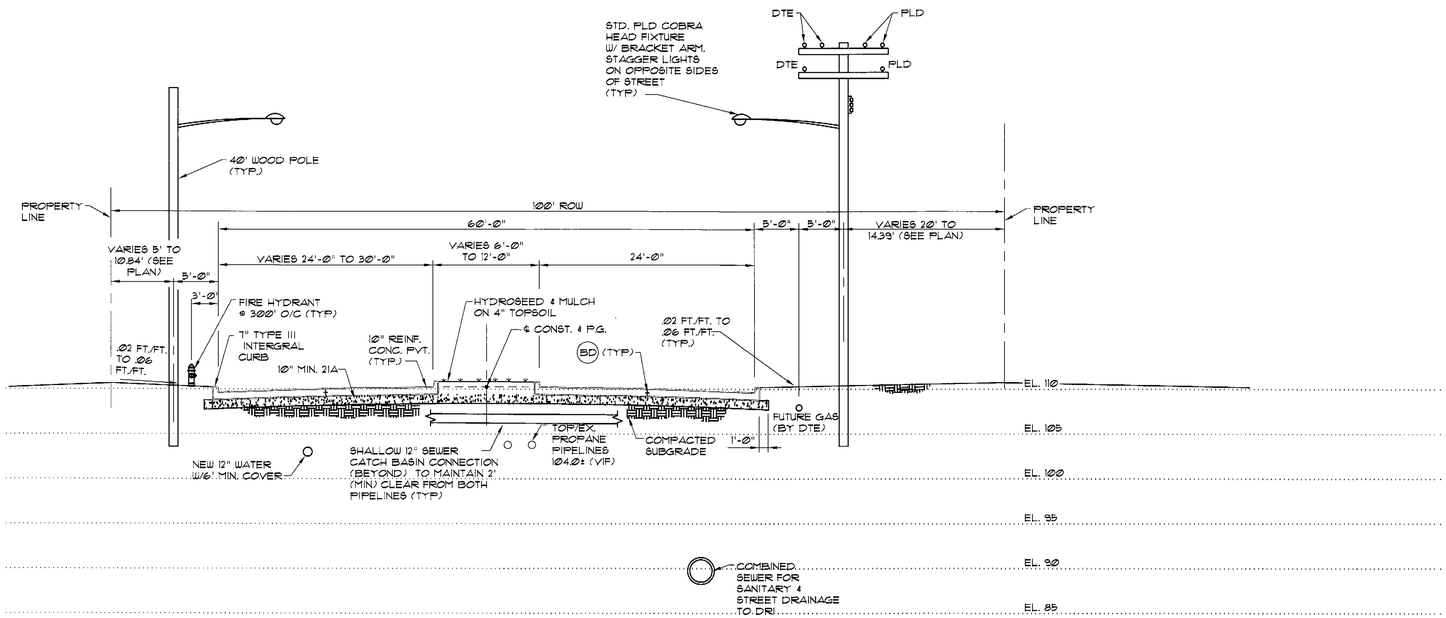
T (CURB OFFSET)		0.6		0.7		0.8		0.9		1.0	
	X	a	b	a	b	a	b	a	b	a	b
A (0.583)	0'	0.600	0.583	0.700	0.583	0.800	0.583	0.900	0.583	1.000	0.583
B (0.403)	6'	0.720	0.463	0.810	0.473	0.900	0.483	0.990	0.493	1.080	0.503
C (0.263)	12'	0.800	0.383	0.880	0.403	0.960	0.423	1.040	0.443	1.120	0.463
D (0.163)	18'	0.840	0.343	0.910	0.373	0.980	0.403	1.050	0.433	1.120	0.463
E (0.103)	24'	0.840	0.343	0.900	0.383	0.960	0.423	1.020	0.463	1.080	0.503
F (0.083)	30'	0.800	0.383	0.850	0.433	0.900	0.483	0.950	0.533	1.000	0.583
G (0.103)	36'	0.720	0.463	0.760	0.523	0.800	0.583	0.840	0.643	0.880	0.703
H (0.163)	42'	0.600	0.583	0.630	0.653	0.660	0.723	0.690	0.793	0.720	0.863
I (0.263)	48'	0.440	0.743	0.460	0.823	0.480	0.903	0.500	0.983	0.520	1.063
J (0.403)	54'	0.240	0.943	0.250	1.033	0.260	1.123	0.270	1.213	0.280	1.303
K (0.583)	60'	0.000	1.183	0.000	1.283	0.000	1.383	0.000	1.483	0.000	1.583

X = Distance from face of high curb

a = Height above low pavement gutter elevation

b = Difference between top of high curb and pavement elevation

6569)



TYPICAL CROSS SECTION AT 39+00±

(SECTIONS 37+28 TO 39+47 SIMILAR - SEE PLAN)

SCALE: 1/8"=1'-0"

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY

CHECKED BY

APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
969 E. LARNED SUITE 200 DETROIT, MICHIGAN 48226
(313) 963-6162 FAX (313) 963-2156 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING

DATE: 3-16-04

SHEET TITLE: TYPICAL CROSS SECTION

SHEET NO.: C1.30

2332-21

CURVE 4

R = 650'
DELTA = 2° 12' 49.6"
PC 37+74.31 N. 292,770.80 E. 13,464,793.10
CENTER 293,101.74 E. 13,465,352.35
PT 37+99.42 N. 292,792.66 E. 13,464,780.14

CURVE 2

R = 505'
DELTA = 18° 54' 52.8"
PC 18+59.95 N. 291,105.13 E. 13,464,940.16
CENTER 291,483.67 E. 13,464,605.90
PT 20+26.67 N. 291,233.92 E. 13,465,044.82

CURVE 3

R = 290'
DELTA = 60° 14' 44.9"
PC 25+10.14 N. 291,654.14 E. 13,465,283.93
CENTER 291,797.56 E. 13,13,465,031.87
PT 28+15.08 N. 291,845.20 E. 13,465,281.47

CURVE 1

R = 505'
DELTA = 54° 13' 24.0"
PC 1+73.40 N. 290,588.32 E. 13,464,037.98
CENTER 291,080.81, E. 13,464,149.68
PT 12+51.32 N.290,702.21, 13,464,483.94

ISSUE	BY	CH'KD	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8838 FAX

SCALE: 1" = 40'
0 10 20 40 80 120
SCALE IN FEET

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN 48091
(586) 756-1070

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
969 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-8612 FAX (313) 963-2186 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: ALIGNMENT PLAN
SHEET NO.: C1.50

2332-22

C8092

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY
CHECKED BY
APPROVED BY

ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
565 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-2612 FAX (313) 963-2156 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING
DATE: 3-16-04
SHEET TITLE: DPW STANDARD DETAILS
SHEET NO.: C4.20

2332-23

ISSUE	BY	CHK'D	APP'D	DATE

DETROIT ECONOMIC DEVELOPMENT CORPORATION
211 WEST FORT STREET - SUITE 900 DETROIT, MICHIGAN 48226
(313) 963-2940 (313) 963-8839 FAX

SCALE: AS NOTED

DESIGNED BY
CHECKED BY
APPROVED BY

Iafrate
ANGELO IAFRATE CONSTRUCTION COMPANY
26400 SHERWOOD WARREN, MICHIGAN
(586) 756-1070 48091

TUCKER, YOUNG JACKSON, TULL INC.
CONSULTING ENGINEERS PLANNERS
960 E. LARNED SUITE 300 DETROIT, MICHIGAN 48226
(313) 963-8612 FAX (313) 963-2156 WWW.TYJT.COM

PROJECT: SPRINGWELLS COURT PAVING

DATE: 3-16-04

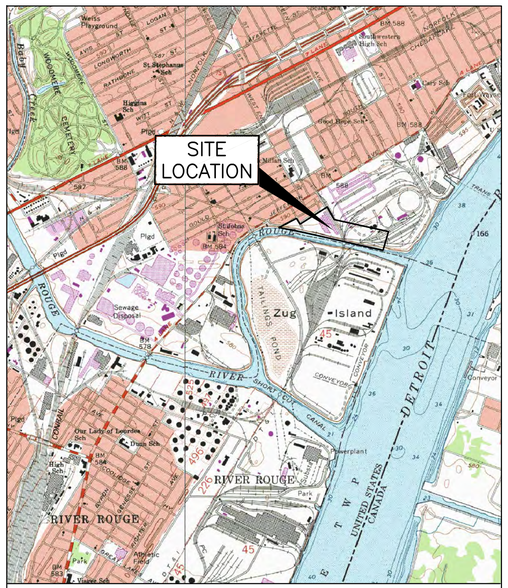
SHEET TITLE: DPW SPECIAL DETAILS

SHEET NO.: C4.21

2332-24

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHEETPILE WALL INSTALLATION
DETROIT, MICHIGAN

100% DESIGN
AUGUST 8, 2016



SITE LOCATION MAP

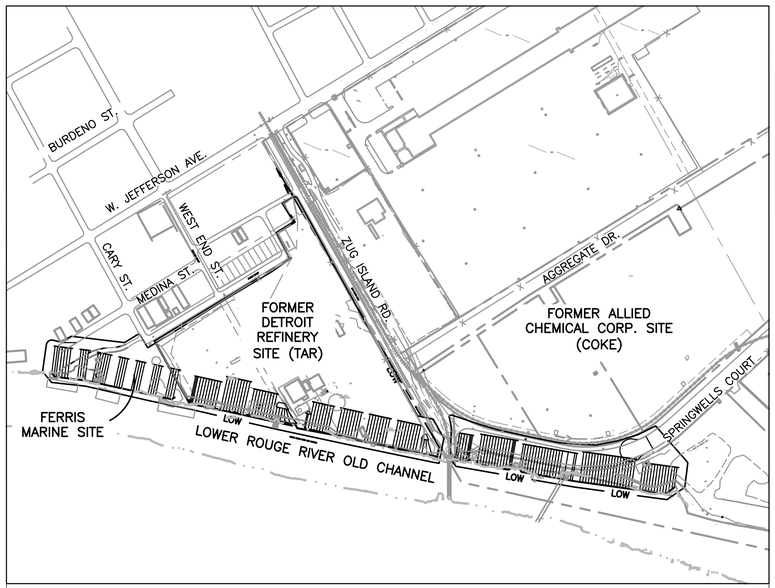
N

QUADRANGLE LOCATION

0 1000 2000 4000

SCALE IN FEET

Taken from the Detroit, Michigan, 7.5 Series U.S.G.S. Topographic Quadrangle Map



PROJECT LIMITS MAP

1800 ZUG ISLAND ROAD
DETROIT, MICHIGAN

N

0 150 300 600

SCALE IN FEET

REFERENCE DRAWINGS

1. GROUNDWATER MITIGATION CONTROL SYSTEM, HONEYWELL INTERNATIONAL, INC. FORMER DETROIT TAR REFINERY – SITE No. 35057, DETROIT, MICHIGAN PREPARED BY AMEC FOSTER WHEELER AND CONSISTING OF 20 DRAWINGS (REV 1, 90% DESIGN DRAWINGS, DATED MAY 16,2016).
2. LOWER ROUGE RIVER OLD CHANNEL, ROUGE RIVER AREA OF CONCERN, DETROIT, MICHIGAN, 90% DESIGN, JUNE 17, 2009.

PREPARED FOR:

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

AND

EPA

IN ASSOCIATION WITH:

ANCHOR QEA

AND

EA Engineering, Science, and Technology, Inc. PBC

DRAWING INDEX

INCLUDED THIS SUBMITTAL	SHEET NUMBER	DRAWING TITLE	DISCIPLINE NUMBER
•	1	COVER SHEET	G–001
•	2	LEGEND AND ABBREVIATIONS	G–002
•	3	GENERAL NOTES	G–003
•	4	OVERALL SITE PLAN	C–101
•	5	EXISTING CONDITIONS PLAN (COKE)	C–102
•	6	EXISTING CONDITIONS PLAN (TAR)	C–103
•	7	EXISTING CONITONS PLAN (FERRISS)	C–104
•	8	STAGING PLAN (FORMER DETROIT TAR)	C–105
•	9	SITE DEMOLITION PLAN (COKE)	C–106
•	10	SITE DEMOLITION PLAN (TAR)	C–107
•	11	SITE DEMOLITION PLAN (FERRIS)	C–108
•	12	PRE–TRENCHING PLAN (COKE)	C–109
•	13	PRE–TRENCHING PLAN (TAR)	C–110
•	14	PRE–TRENCHING PLAN (FERRIS)	C–111
•	15	EXCAVATION PLAN (COKE)	C–112
•	16	EXCAVATION PLAN (TAR)	C–113
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•	23	INTERPRETIVE SUBSURFACE PROFILE ALONG PERMANENT SHEETPILE WALL ALIGNMENT (FERRISS)	C–203
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•	26	INTERPRETIVE SUBSURFACE PROFILE ALONG DEADMAN ALIGNMENT (FERRISS)	C–206
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•	33	CROSS SECTIONS STA 103+00 TO STA 105+00	C–402
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•	51	STRUCTURAL DETAILS 5	S–505
•	52	STRUCTURAL DETAILS 6	S–506
•	53	STRUCTURAL DETAILS 7	S–507

Lyle N Tracy

NO.	DATE	REVISION	CHK	APVD
2	8/08/16	100% DESIGN - FOR REVIEW	WJW	LNT
1	6/17/16	90% DESIGN - CLIENT REVIEW	JVM	LNT
DSGN	L. TRACY	DR J. McKENZIE	CHK L. STIRBAN	APVD L. TRACY

MI PROFESSIONAL ENGINEER
LICENSE NUMBER LNT

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHEETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

GENERAL
COVER SHEET

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME, 04112
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	G-001
SHEET	1 OF 53

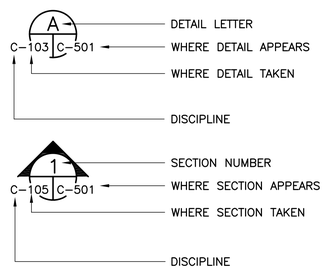
LEGEND

EXISTING	PROPOSED
PROPERTY BOUNDARY	
INTERIOR BOUNDARY LINES	
LEASE AREA LINE	
BUILDING/FOUNDATIONS	
EXISTING FOUNDATION/ FORMER BUILDING	
CONTOUR	19
NEGATIVE CONTOUR	(3)
SPOT GRADE	x 574.7
EXISTING RETAINING WALL	
PAVED ROAD	
EDGE OF WATER	
FENCE	
SANITARY SEWER	
UNDERGROUND ELECTRIC	E
OVERHEAD UTILITIES	
FORCE MAIN	FM
WATER LINE	
GAS LINE	
STORM DRAIN LINE	SD
WETLAND	
TREE LINE	
AUGMENTED SILTATION FENCE	ASF
SILTATION FENCE	SF
TURBIDITY CURTAIN	SC
LIMIT OF EXCAVATION	
PERMANENT CHAIN LINK FENCE	
TEMPORARY CONSTRUCTION FENCE	
CHAINLINK FENCE ON PRECAST CONCRETE BARRIER	
FLOODPLAIN	
SITE SUPPORT AREA	
500 FT WATERFRONT DEVELOPMENT LINE	
APPROXIMATE LIMIT OF ASPHALT DISTURBANCE	
LIMITS OF WORK	LOW
WATER MANHOLE	
BOLLARD	
CATCH BASIN	
SANITARY SEWER MANHOLE	
SIGNS	
SINGLE TREE	
SOIL BORING	
RAILROAD	
UTILITY POLE	
LIGHT POLE	
GUY POLE	
ELECTRIC MANHOLE/VAULT	
GAS SHUT-OFF VALVE	
AIR RELEASE VALVE	
WATER SHUT-OFF VALVE	
HYDRANT	
SETTLEMENT PLATFORM	SP-5
MONIROING WELL	
VES WELL	
SLOPE DIRECTION	
GROUNDWATER LEVEL	

LEGEND

EXISTING	PROPOSED
CONCRETE	
RIPRAP/STONE	

REFERENCE LEGEND:



BENCHMARK/CONTROL POINT TABLE

POINT	NORTHING	EASTING	ELEVATION
BM #200	290423.5390	13462799.8700	580.63
BM #202	290297.5150	13463856.0660	586.88
CP #1 (5/8" ROD)	290517.2100	13463425.7400	–
CP #101	290320.5410	13463281.2300	582.01
CP #102	290504.5770	13462633.2210	581.49
CP #201	290488.9220	13463071.2900	584.02

ABBREVIATIONS

ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ASF	AUGMENTED SILT FENCE
AWG	AMERICAN WIRE GAUGE
BGS	BELOW GROUND SURFACE
BM	BENCH MARK
CJ	CONTROL JOINT
CLR	CLEAR
℄	CENTER LINE
CON	CONCRETE
CS	CARBON STEEL
CP	CONTROL POINT
DI	DUCTILE IRON
DOT	DEPARTMENT OF TRANSPORTATION
E	ELECTRICAL
EF	EFFLUENT
EL, ELEV	ELEVATION
EW	EACH WAY
EX	EXISTING
F	FILTER
FE	FLOW ELEMENT
FF	FINISHED FLOOR
FM	FORCE MAIN
FT	FEET
G, GAS	GAS
GW	GROUND WATER
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
I, INST	INSTRUMENTATION
INV	INVERT
LOW	LIMITS OF WORK
LP	LOW POINT
MI	MICHIGAN
MIN	MINIMUM
MAX	MAXIMUM
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NIC	NOT IN THIS CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
P	PUMP
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
RET	RETAINING
RCP	REINFORCED CONCRETE PIPE
R.O.W.	RIGHT OF WAY
S	SAMPLE
SAN	SANITARY
SC	TURBIDITY CURTAIN
SCH	SCHEDULE
SS	SANITARY SEWER
STA	STATION
T	TANK
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TYP	TYPICAL
W	WATER
ø	DIAMETER

Lyle N Tracy

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2	8/08/16	L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY
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DATE	JUNE 2016
PROJ	3293-16-1667
DWG	G-002
SHEET	2 OF 53

PROJECT SUMMARY

1. THE PROJECT CONSISTS OF THE FOLLOWING:
   A. APPLICATION, MAINTENANCE, AND REMOVAL OF ALL EROSION AND SEDIMENTATION MEASURES.
   B. ABANDONMENT AND REMOVAL OF SELECT UTILITIES.
   C. PROTECTION OF SELECT ACTIVE UTILITIES.
   D. DEMOLITION OF SELECT EXISTING AND ABANDONED STRUCTURES.
   E. PRETRENCHING AND BACKFILLING ALONG SHEETPILE WALL AND DEADMAN ALIGNMENT.
   F. REMOVAL AND OFF–SITE DISPOSAL OF DEMOLISHED STRUCTURES, OBSTRUCTIONS, AND GROSSLY CONTAMINATED SOILS REMOVED FROM THE PRETRECHING, EXCAVATIONS, AND DEMOLITION.
   G. INSTALLATION OF SHEETPILE WALL.
   H. INSTALLATION OF DEADMEN SHEETPILES, BATTERED PILES, AND CONCRETE DEADMEN.
   I. INSTALLATION OF TIEBACKS, WALERS AND CONNECTIONS.
   J. BACKFILL OF SHEETPILE WALL, TIEBACKS AND DEADMEN.
   K. PRE–TENSIONING OF TIEBACKS.
   L. RESTORATION OF FINAL SURFACE GRADES.

2. SHEETPILE WALL AND DEADMAN WALL SHEETPILES, WALERS, TIEBACK ANCHORS, NUTS AND WASHERS, AND ANGLES FOR FUTURE GROUTING WILL BE PURCHASED AND PROVIDED BY HONEYWELL. BEARING PLATES, SHIM PLATES, TIE PLATES, AND ANGLE BOTTOM PLATES SHALL BE PROVIDED PURCHASED AND PROVIDED BY THE SUBCONTRACTOR. ALL FABRICATION AND INSTALLATION SHALL BE PROVIDED BY THE CONTRACTOR.

3. ALL OTHER MATERIALS, EXCLUDING INCLINOMETERS, SHALL BE PROVIDED BY THE SUBCONTRACTOR.

4. ALL FIELD FABRICATION AND WELDING SHALL BE PROVIDED/PERFORMED BY THE SUBCONTRACTOR.

5. PERFORMANCE AND MONITORING OF TEST BORINGS, PROVISION OF INCLINOMETER MATERIALS, AND INSTALLATION INCLINOMETERS WILL BE PROVIDED BY HONEYWELL.

6. THE PROJECT WORK SHALL CONSIDER CONCURRENT CONSTRUCTION AT THE SITE THAT INVOLVES INSTALLATION OF A NEW GROUNDWATER COLLECTION SYSTEM ON THE FORMER DETROIT TAR SITE. THIS WORK IS NOT INCLUDED IN THIS CONTRACT; HOWEVER, MUST BE ACCOMMODATED IN THE PROJECT SCHEDULE AND SEQUENCING.

7. THE PROJECT WORK SHALL CONSIDER CONCURRENT CONSTRUCTION AT THE SITE THAT INVOLVES GROUTING OF THE INTERLOCKS OF THE SHEETPILE WALL.

8. THE SHEETING DETAILS INVOLVE APPLICATION/INCLUSION OF MEASURES TO ALLOW GROUTING OF THE SHEETPILE WALL INTERLOCKS UNDER A SEPARATE CONTRACT. GROUTING OF THE INTERLOCKS MUST BE PERFORMED WITHIN 3 WEEKS OF INSTALLATION OF THE SHEETS. THIS MUST BE ACCOMMODATED IN THE PROJECT SCHEDULE AND SEQUENCING, AND WILL REQUIRE THAT SEGMENTS OF THE WALL BE INSTALLED AND GROUTED TO STAY WITHIN THIS 3 WEEK TIME–FRAME.

9. JET GROUT WALL SEGMENTS AT FOUR WINDOWS OF THE WALL AND A CEMENT–BENTONITE SLURRY WALL AT THE WEST LIMIT OF THE FORMER DETROIT TAR SITE WILL BE INSTALLED AT A LATER DATE UNDER A SEPARATE CONTRACT.

GENERAL NOTES

1. IT IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING FEATURES, INCLUDING ACTIVE AND ABANDONED UTILITIES, AS SHOWN ON THESE PLANS ARE BASED ON EXISTING RECORDS AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. EXISTING CONDITIONS SHOWN ON THE PLANS OUTSIDE OF OR WITHIN THE PROJECT WORK AREAS MAY NOT REFLECT ALL ABOVE OR BELOW GROUND FEATURES, INCLUDING UTILITIES. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE AND ALL FIELD CONDITIONS SHALL BE VERIFIED BY THE SUBCONTRACTOR PRIOR TO COMMENCING WORK.

2. SEVERAL ACTIVE BELOW GROUND AND ABOVE GROUND UTILITIES EXIST ON THE SITE. REFER TO UTILTY NOTES ON THIS DRAWINGS FOR DETAILS.

3. THE SUBCONTRACTOR SHALL COORDINATE WITH ADJACENT LANDOWNERS WHERE WORK ENCROACHES UPON THOSE PROPERTIES PRIOR TO CONSTRUCTION. EXPANSION OF WORK LIMITS OUTSIDE THE LIMITS SHOWN ON THE DRAWINGS WILL REQUIRE COORDINATION WITH AND APPROVAL BY THE ADJACENT LANDOWNER.

4. ACTIVE OPERATIONS AND MAINTENANCE ACTIVITIES TAKE PLACE AT THE FORMER DETROIT TAR SITE AT THE EXISTING TREATMENT PLANT. THE SUBCONTRACTOR SHALL CONDUCT THE WORK TO MAINTAIN ACCESS TO EXISTING FACILITIES, FIRE EXITS, AND MEANS OF INGRESS AND EGRESS.

5. STORAGE OF EQUIPMENT AND CONSTRUCTION MATERIALS SHALL BE RESTRICTED TO DESIGNATED STAGING AREAS, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

6. PLACE TEMPORARY STOCKPILES AWAY FROM RIVER CHANNEL TO MITIGATE THE POTENTIAL OF SEDIMENT AND TURBID WATER FROM ENTERING THE RIVER SYSTEM AND TO MITIGATE SURCHARGING OF THE RIVERBANK.

7. THE SUBCONTRACTOR SHALL MAINTAIN DUST CONTROL FOR THE DURATION OF THE PROJECT AS SUMMARIZED IN THE SPECIFICATIONS.

8. CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO AREAS SHOWN ON THE DRAWINGS. WORK BEYOND THESE LIMITS SHALL BE AS DIRECTED BY THE ENGINEER.

SURVEY DATA

1. SITE TOPOGRAPHY, BATHYMETRY, AND STRUCTURE LOCATION IS BASED UPON THE FOLLOWING SURVEYS AND SOURCES:

   - BASE MAP SOURCE: ANGELO IAFRATE CONSTRUCTION COMPANY. TUCKER, YOUNG, JACKSON, TULL INC. CONSULTING ENGINEERS PLANNERS. DATED 3–16–04.
   - ADDITIONAL BASE MAP SOURCE: STRUDES, MONTREAL, CANADA, AND LAFARGE NORTH AMERICA. DRAWING NUMBER – DET 511 A401, DATED 5/4/04.
   - ADDITIONAL MAP SOURCE: DRAWINGS 1 AND 2, MACTEC–HONEYWELL TAR TANK TOPO, TOPOGRAPHY SURVEY OF LAND LOCATED IN PART OF P.C. 45 AND PART OF P.C. 718, CITY OF DETROIT, WAYNE COUNTY, MICHIGAN SURVEY BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM NAD 83 DATUM SOUTH ZONE. NGS REFERENCE MARKS USED, NE0856 AND AA8056. SURVEYOR: MIDWESTERN CONSULTING 3815 PLAZA, ANN ARBOR, MICHIGAN 48108 DATED: 10/27/10.
   - DATUM: NGVD 1988 (UNLESS OTHERWISE NOTED). TO CONVERT TO CITY OF DETROIT DATUM SUBTRACT 480.325.
   - HORIZONTAL CONTROL IS BASED ON NAD83, MICHIGAN STATE PLANE COORDINATE SYSTEM, INTERNATIONAL SURVEY FEET.
   - BATHYMETRIC CONTOURS PROVIDED ELECTRONICALLY BY EA, DATED DECEMBER 11, 2015.
   - PROPOSED DREDGE SURFACE DATA FILE PROVIDED ELECTRONICALLY BY ANCHOR QEA, DATED APRIL 18, 2016.

CONSTRUCTION SEQUENCE

1. OBTAIN ALL SUBCONTRACTOR REQUIRED PERMITS.
2. SUBMIT ALL REQUIRED PROJECT PLANS AND PRE–CONSTRUCTION SUBMITTALS TO THE ENGINEER.
3. MOBILIZE ALL EQUIPMENT AND PERSONNEL TO THE SITE AS NECESSARY FOR THE COMPLETION OF THE WORK.
4. ON SITE PERSONNEL SHALL RECEIVE SITE SPECIFIC TRAINING IN ACCORDANCE WITH THE SUBCONTRACTOR'S WRITTEN SAFETY AND HEALTH TRAINING PROGRAM INCLUDING 29 CFR 1910 SECTION .120, 29 CFR 1926 SECTION .65, AND 29 CFR 1926 SECTION .21.
5. PERFORM SURVEY PRE–CONSTRUCTION SITE SURVEY AND LIMITED BATHYMETRIC SURVEY, INCLUDING PROPERTY LINE SURVEY TO CONFIRM EXISTING CONDITIONS. BATHYMETRIC SURVEY SHALL EXTEND 20 FEET SOUTH OF THE SHEETPILE WALL. SURVEY SHALL INCLUDE LAYOUT OF THE SHEETPILE WALL AND DEADMAN.
6. ACCURATELY LOCATE ALL UTILITIES AND IDENTIFY ACTIVITY (ACTIVE, INACTIVE, ABANDONED) OF EACH UTILITY.
7. ESTABLISH AND INSTALL SOIL EROSION AND SEDIMENTATION CONTROLS.
8. CONSTRUCT TEMPORARY FACILITIES AND CONTROLS, ACCESS ROADS, STAGING AREAS AND STOCKPILE LOCATIONS.
9. PERFORM CLEARING AND GRUBBING.
10. PERFORM DEMOLITION OF SELECT EXISTING STRUCTURES AND ABANDONMENT/DEMOLITION OF SELECT UTILITIES.
11. PERFORM PRETRENCHING TO REMOVE OBSTRUCTIONS WITHIN THE LIMITS OF THE SHEETPILES AND DEADMEN, AND BACKFILL PRETRENCHES.
12. PRIOR TO SHEETPILE WALL INSTALLATION, 20 EXPLORATORY TEST BORINGS TO IDENTIFY THE TOP OF BEDROCK ALONG THE SHEETPILE ALIGNMENT AT THE TOP OF THE RIVERBANK AND AT CONCRETE DEADMAN LOCATIONS WILL BE PERFORMED BY HONEYWELL. INCLINOMETERS WILL BE INSTALLED IN BORINGS B17–3, B17–6, B17–10, B17–12, B17–16, AND B17–18.
13. INSTALL SHEETPILE WALL.
14. INSTALL SHEETPILE DEADMEN, BATTERED PILES AND CONCRETE DEADMEN.
15. PRIOR TO INSTALLATION OF TIE–BACKS, A PROPOSED GROUNDWATER COLLECTION SYSTEM MUST BE INSTALLED AT THE FORMER DETROIT TAR SITE UNDER A SEPARATE CONTRACT. SEE DRAWING C–116 FOR LOCATION. THE SUBCONTRACTOR SHALL CONSIDER THIS IN ESTABLISHING PROJECT SCHEDULES AND PERFORMANCE OF THE WORK.
16. PRIOR TO INSTALLATION OF TIEBACKS, INSTALL SETTLEMENT PLATFORMS.
17. INSTALL TIEBACKS, WALERS, AND STRUCTURAL CONNECTIONS.
18. BACKFILL SHEETPILE WALL, TIEBACKS, AND DEADMEN.
19. PRE–TENSION TIEBACKS.
20. BACKFILL NORTH SIDE OF SHEETPILE DEADMEN.
21. RESTORE THE SITE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
22. CONDUCT FINAL (POST RESTORATION) TOPOGRAPHIC FIELD SURVEYS.
23. DECONTAMINATE ALL EQUIPMENT AND MATERIALS.
24. DEMOBILIZE ALL EQUIPMENT AND PERSONNEL.
25. SUBMIT ALL PROJECT RECORD DOCUMENTS.

UTILITY LOCATION AND PROTECTION

1. THE SUBCONTRACTOR SHALL ACCURATELY LOCATE (LOCATION AND ELEVATION) ALL UTILITIES PRIOR TO CONSTRUCTION. THE LOCATION OF UNDERGROUND UTILITIES/STRUCTURES SHOWN ON THE DRAWINGS IS APPROXIMATE. PRIOR TO EXCAVATION ACTIVITIES, THE SUBCONTRACTOR SHALL VERIFY THE LOCATION OF IDENTIFIED UTILITIES/STRUCTURES IN THE AREA. THE SUBCONTRACTOR IS WARNED THAT ADDITIONAL UTILITIES/STRUCTURES MAY EXIST AND SPECIAL CARE SHOULD BE TAKEN WHILE CONDUCTING WORK BELOW GRADE.
2. THE SUBCONTRACTOR SHALL PROTECT EXISTING STRUCTURES AND UTILITIES AS SPECIFIED. UTILITIES OF MAJOR SIGNIFICANCE INCLUDE BUT ARE NOT LIMITED TO:
   A. HIGH VOLTAGE ELECTRIC LINE ON THE FORMER DETROIT TAR SITE.
   B. 12–WATER LINE ON THE FORMER DETROIT COKE SITE (REQUIRES PARTIAL RELOCATION).
   C. WATER MAIN, FORCE MAIN, AND ELECTRIC LINES ON THE FORMER DETROIT COKE SITE THAT SERVICE THE U.S. STEEL PLANT.
   D. PROCESS WATER SEWER LINE ON THE EXISTING OVERHEAD UTILITY BRIDGE AT THE FORMER DETROIT COKE SITE.
3. SHOULD UNCHARTED, OR INCORRECTLY CHARTED, UTILITIES BE ENCOUNTERED DURING EXCAVATION, CONSULT THE ENGINEER FOR DIRECTION.
4. PRIOR TO UTILITY REMOVAL (IF NECESSARY), THE SUBCONTRACTOR SHALL VERIFY THE UTILITIES HAVE BEEN DISCONTINUED IN USE AND ABANDONED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS AND/OR THE UTILITY OWNER'S REQUIREMENTS.

SOIL EROSION AND SEDIMENT CONTROL

1. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE PLANS SHALL BE IMPLEMENTED AND MAINTAINED THROUGHOUT THE PROJECT IN ACCORDANCE DRAWINGS C–301 THROUGH C–305.
2. THE LOCATION OF EXISTING AND PROPOSED SOIL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE PLANS ARE APPROXIMATE AND SHALL BE ADJUSTED BASED ON THE EXTENT OF LAND DISTURBANCE REQUIRED TO PERFORM THE WORK. EXPANSION OF WORK LIMITS OUTSIDE IDENTIFIED AREAS WILL REQUIRE COORDINATION WITH THE OWNER AND ENGINEER.
3. MAINTAIN ALL SOIL/MATERIAL STOCKPILES THROUGHOUT THE DURATION OF THE PROJECT TO PROTECT AGAINST EROSION.

DEMOLITION

1. DEMOLITION SHALL CONSIST OF REMOVAL OF ABANDONED FOUNDATIONS, ABANDONED UTILITIES, AND UTILITES THAT WILL BE RELOCATED OR ELIMINATED.
2. ABANDONED FOUNDATIONS ON THE FORMER DETROIT TAR SITE TO BE DEMOLISHED CONSIST OF FORMER ABOVE GROUND STORAGE TANKS (ASSUMED TO BE 4–FOOT THICK CONCRETE MATS), EXISTING RETAINING WALL (SHOWN ON DETAIL SHEETS), AND FORMER BUILDING FOUNDATIONS (ISOLATED AND CONTINUOUS FOUNDATIONS EMBEDDED APPROXIMATELY 4 FEET BELOW GRADE).
3. UTILITES TO BE DEMOLISHED ARE ANTICIPATED TO BE BURIED 4–FEET BELOW GRADE, AND CONSIST OF STEEL, PVC, OR DUCTILE IRON CONDUIT.
4. THE SUBCONTRACTOR MAY CHOOSE TO DEMOLISH THE ABANDONED STRUCTURES AND UTILITIES DURING EXCAVATION FOR THE PERMANENT SHEETPILE WALL TIE–BACKS AND WALERS.

EXISTING MONITORING WELLS

1. EXISTING MONITORING WELLS OR PIEZOMETERS WITHIN 70 FEET OF THE TOP OF RIVERBANK SHALL BE PROTECTED UNLESS REMOVAL IS REQUIRED TO INSTALL TIEBACKS. WELLS OR PIEZOMETERS OUTSIDE THIS 70 FOOT ZONE SHALL BE PROTECTED AGAINST DISTURBANCE AND MAINTAINED ACCESSIBLE FOR MONITORING AND SAMPLING ACTIVITIES, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. WELLS DAMAGED BY THE SUBCONTRACTOR OUTSIDE THIS 70 FOOT ZONE SHALL BE REPAIRED OR REPLACED AT THE SUBCONTRACTOR'S COST TO THE SATISFACTION OF THE OWNER.

EXCAVATION, RE–USE AND CONTAINERIZATION, TRANSPORTATION AND DISPOSAL OF CONTAMINATED MATERIALS AND HANDLING/TREATMENT OF CONTAMINATED WATER

1. NON–CONTAMINATED EXCAVATED SOIL/MATERIALS, SUITABLE FOR REUSE DURING BACKFILLING OPERATIONS, SHALL BE STOCKPILED, STORED AND HANDLED IN A MANNER TO AVOID CONTACT WITH ANY CONTAMINATED MATERIALS.
2. SOILS AND DEBRIS REMOVED FROM THE SHEETPILE WALL PRETRENCH SHALL BE CONSIDERED CONTAMINATED, AND SHALL TRANSPORTED TO A DESIGNATED TEMPORARY CONTAINER STAGING AREA ON–SITE AND SUBSEQUENTLY TRANSPORTED OFF–SITE FOR PROPER DISPOSAL
3. SOILS REMOVED FROM THE DEADMEN PRETRENCHING AND EXCAVATON AT THE FORMER ALLIED CHEMICAL CORP (DETROIT COKE) SITE AND FERRISS MARINE SITES DURING PRETRENCHING AND EXCAVATION SHALL BE CONSIDERED UNCONTAMINATED, AND SHALL BE REUSED AS BACKFILL WHERE PRACTICAL.
4. SOILS REMOVED FROM THE PRETRENCHING AND EXCAVATIONS FROM THE FORMER DETROIT REFINERY (DETROIT TAR) SITE MAY BE CONTAMINATED AND SHALL BE RE–USED WHERE PRACTICAL IF NOT CONTAMINATED OR IF CONTAMINATION IS LOW. CONTAMINATED SOIL/MATERIALS REMOVED FROM THIS PRETRENCHING AND EXCAVATION SHALL BE TRANSPORTED TO A DESIGNATED TEMPORARY CONTAINER STAGING AREA ON–SITE AND SUBSEQUENTLY TRANSPORTED OFF–SITE FOR PROPER DISPOSAL.
5. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER ON–SITE MANAGEMENT OF WASTES GENERATED IN COMPLIANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND REQUIREMENTS.
6. THE SUBCONTRACTOR IS RESPONSIBLE FOR THE PREPARATION OF ALL DOCUMENTS REQUIRED FOR THE OFF–SITE TRANSPORTATION AND DISPOSAL OF ALL WASTE MATERIALS.
7. ALL NON–CONTAMINATED MATERIALS AND DEBRIS UNSUITABLE FOR REUSE ONSITE, INCLUDING BUT NOT LIMITED TO CONCRETE, ASPHALT, STEEL, WOOD, AND OTHER MISCELLANEOUS DEBRIS, SHALL BE PROPERLY DISPOSED OFF–SITE AT A FEDERALLY OR STATE LICENSED/PERMITTED DISPOSAL FACILITY OR RECYCLING FACILITY UNLESS OTHERWISE APPROVED BY THE ENGINEER.
8. EXCAVATED CONTAMINATED SOIL/MATERIALS SHALL BE DIRECT LOADED INTO CONTAINERS WITHIN THE REMOVAL AREA AND/OR TRUCKS SUITABLE FOR OFF–SITE TRANSPORTATION. DETERMINATION OF CONTAMINATED SOIL/MATERIALS VERSUS NON–CONTAMINATED SOIL MATERIALS SHALL BE THE RESPONSIBILITY OF THE ENGINEER BASED ON VISUAL OBSERVATION.
9. THE SUBCONTRACTOR SHALL PLAN AND SEQUENCE THEIR WORK ACTIVITIES AND SHALL ALTERNATE EXCAVATION ACTIVITIES BETWEEN TWO OR MORE AREAS AT A TIME TO ALLOW FOR SAMPLING (IF NECESSARY) AND INSPECTION ACTIVITIES BY OTHERS.
10. EXCAVATION ACTIVITIES SHALL BE PERFORMED IN SUCCESSION WITH SAMPLING AND INSPECTION ACTIVITIES. NO EXCAVATION OR MATERIAL HANDLING ACTIVITIES WILL BE ALLOWED WITHIN OR DIRECTLY ADJACENT TO AREAS UNDERGOING SAMPLING (IF NECESSARY) OR INSPECTION FOR WORKER SAFETY PURPOSES.
11. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE HANDLING, MANAGEMENT, CONTAINERIZATION, TRANSPORTATION AND OFF–SITE DISPOSAL OF ALL CONTAMINATED SOIL/MATERIALS, NON–HAZARDOUS WASTE, RCRA HAZARDOUS WASTE, STATE–REGULATED MATERIALS, STEEL, PIPE, CONCRETE/MASONRY, METAL, WOOD, ASPHALT PAVEMENT, AND ALL OTHER MISCELLANEOUS DEBRIS, AND LIQUID WASTE GENERATED DURING THE PERFORMANCE OF THE WORK.
12. VISUAL INSPECTION OF THE EXCAVATION AREAS FOR CONTAMINATED SOIL/MATERIALS WILL BE CONDUCTED BY THE SUBCONTRACTOR AND ENGINEER AND APPROVED BY THE ENGINEER.
13. THE SUBCONTRACTOR SHALL UTILIZE CLEAN NON–CONTAMINATED EQUIPMENT AND MATERIALS, AS APPROVED BY THE ENGINEER, FOR CONDUCTING BACKFILLING AND RESTORATION ACTIVITIES. THE SUBCONTRACTOR SHALL BACKFILL AND RESTORE THE EXCAVATION AND DISTURBED AREAS IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. BACKFILL MATERIALS WILL CONSIST OF NON–CONTAMINATED STOCKPILED SOIL (RECLAIMED EXCAVATION SOIL) AND IMPORTED FILL MEETING THE SPECIFICATIONS AND APPROVED BY THE ENGINEER.
14. WATER GENERATED FROM THE SHEETPILE WALL PRETRENCH, AND GROUNDWATER FROM THE DEADMAN PRETRENCH, CONCRETE DEADMAN EXCAVATIONS, AND TIEBACK EXCAVATIONS SHALL BE COLLECT AND CONTAINERIZED AND TREATED IN ACCORDANCE WITH THE SPECIFICATIONS PRIOR TO DISCHARGE TO THE EXISTING DETROIT WATER AND SEWERAGE DEPARTMENT (DWSD) SANITARY SEWER.
15. THE EXISTING WASTEWATER TREATMENT PLANT IS CURRENTLY INACTIVE BUT IS AVAILABLE FOR USE BY THE SUBCONTRACTOR FOR THE TREATMENT OF CONTAMINATED WATER AND GROUNDWATER.

EXCAVATION AND BACKFILLING

1. THE SUBCONTRACTOR SHALL CONDUCT EXCAVATIONS IN ACCORDANCE WITH SAFETY REQUIREMENTS OF THE U.S. DEPARTMENT OF LABOR'S CONSTRUCTIONS SAFETY ACT DESIGNATED AS TITLE 29 CFR PART 1926 SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION, SUBPART P, SECTIONS 1926.650 THROUGH 652, AND ALL OTHER APPLICABLE LAWS AND REGULATIONS.
2. STABILITY OF EXCAVATIONS IS THE RESPONSIBILITY OF THE SUBCONTRACTOR, AND SHALL MEET ALL LOCAL, STATE AND FEDERAL REQUIREMENTS. SHEETING/SHORING/BRACING MAY BE REQUIRED TO PROTECT STRUCTURES TO REMAIN, AT THE DISCRETION OF THE SUBCONTRACTOR, AND IN COMPLIANCE WITH THE SPECIFICATIONS.
3. PRETRENCHING FOR THE SHEETPILE WALL SHALL BE PERFORMED AND BACKFILLED IN MAXIMUM 30–FOOT LENGTHS ALONG THE ALIGNMENT OF THE WALL TO MAINTAIN STABILITY OF THE RIVERBANK SLOPES. BACKFILLING SHALL BE PERFORMED USING CRUSHED STONE AS SPECIFIED TO MITIGATE THE NEED FOR COMPACTION OF BACKFILL.
4. PRETRENCHING FOR THE DEADMEN WALL SHALL BE PERFORMED AND BACKFILLED IN MAXIMUM 30–FOOT LENGTHS ON THE FORMER DETROIT COKE SITE ADJACENT TO THE RAILROAD ALONG THE ALIGNMENT OF THE DEADMAN WALL TO MAINTAIN STABILITY OF THE RAILROAD. BACKFILLING SHALL REUSE EXISTING SOIL CUTTINGS UNLESS SOILS IS DEEMED GROSSLY CONTAMINATED BY THE ENGINEER.
5. THE SUBCONTRACTOR IS RESPONSIBLE TO PERFORM ALL WORK IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS AND REQUIREMENTS.
6. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING STATE OF MICHIGAN MISS DIG SYSTEM A MINIMUM OF 72 HOURS PRIOR TO ANY EXCAVATION OR SUBSURFACE ACTIVITIES. MISS DIG CAN BE REACHED BY CALLING 1–800–482–7171.
7. EXCAVATION SLOPES, ESTIMATED AT 1.5H:1V (HORIZONTAL TO VERTICAL), SHOWN ON DRAWING FOR ARE THOSE ESTIMATED BY THE ENGINEER TO ALLOW DEMOLITION AND REMOVAL OF OBSTRUCTIONS AND DEBRIS, WHILE NOT EXCEEDING THE LIMITS OF FINAL GRADE IN THE AREA. THE SUBCONTRACTOR MAY, AT HIS DISCRETION, PROPOSE ALTERNATIVE TEMPORARY GRADES FOR THIS WORK FOR APPROVAL BY THE ENGINEER.
8. THE EXCAVATION WORK TO INSTALL TIEBACKS AND WALERS, AS WELL AS PRE–TENSIONING OF TIEBACKS SHALL WILL BE PERFORMED IN THE DRY. THE SUBCONTRACTOR SHALL ALL MEANS NECESSARY TO MAINTAIN THE EXCAVATIONS IN A DRY STATE.
9. BACKFILL OF THE EXCAVATIONS ADJACENT TO THE SHEETPILE WALL AND DEADMEN BELOW GROUNDWATER SHALL CONSIST OF CRUSHED STONE OR LIGHTWEIGHT FILL TO MITIGATE THE NEED TO COMPACTION OF THE BACKFILL.
10. EXCAVATION WORK ADJACENT TO ACTIVE UTILITIES, ZUG ISLAND ROAD OR OTHER STRUCTURES MAY REQUIRE TEMPORARY SHEETING/SHORING TO PROTECT THE UTILITY/STRUCTURE.

GRADING AND DRAINAGE

1. THE SUBCONTRACTOR SHALL EMPLOY MEASURES NECESSARY TO DIVERT SURFACE RUNOFF AWAY FROM ALL OPEN EXCAVATION AREAS, AS NECESSARY FOR THE PERFORMANCE OF THE WORK AS SHOWN, AND AS DIRECTED BY THE ENGINEER.
2. THE SUBCONTRACTOR SHALL DEWATER EXCAVATIONS AS NECESSARY TO PERFORM EXCAVATION AND BACKFILLING ACTIVITIES AND MAINTAIN STABILITY OF EXCAVATIONS. THESE ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH APPLICABLE REQUIREMENTS AND AS DIRECTED IN THE SPECIFICATIONS.
3. DISTURBED AREAS ON THE FORMER TAR SITE, INCLUDING DAMAGED PAVEMENT, SHALL BE RESTORED WITH DENSE GRADED AGGREGATE, AND TOPSOIL AND SEEDED ON THE FORMER COKE SITE AND FERRISS MARINE SITE IN ACCORDANCE WITH PROJECT SPECIFICATIONS, UNLESS NOTED OTHERWISE. TOPSOIL SHALL BE PLACED AT A MINIMUM FINISHED DEPTH OF 4 INCHES IN ALL AREAS INDICATED FOR GRASS COVER UNLESS OTHERWISE NOTED.

SHEETPILING AND STRUCTURAL NOTES AND DETAILS

1. REFER TO DRAWINGS S–101 THROUGH S–103 AND S–501 THROUGH S–505 FOR NOTES AND DETAILS.

NO.	DATE	REVISION	CHK	APVD
DSGN	L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY
DR	L. TRACY			
1	6/17/16	90% DESIGN - CLIENT REVIEW	JVM	LNT
2	8/08/16	100% DESIGN - FOR REVIEW	WJW	LNT

Lyle N Tracy
MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

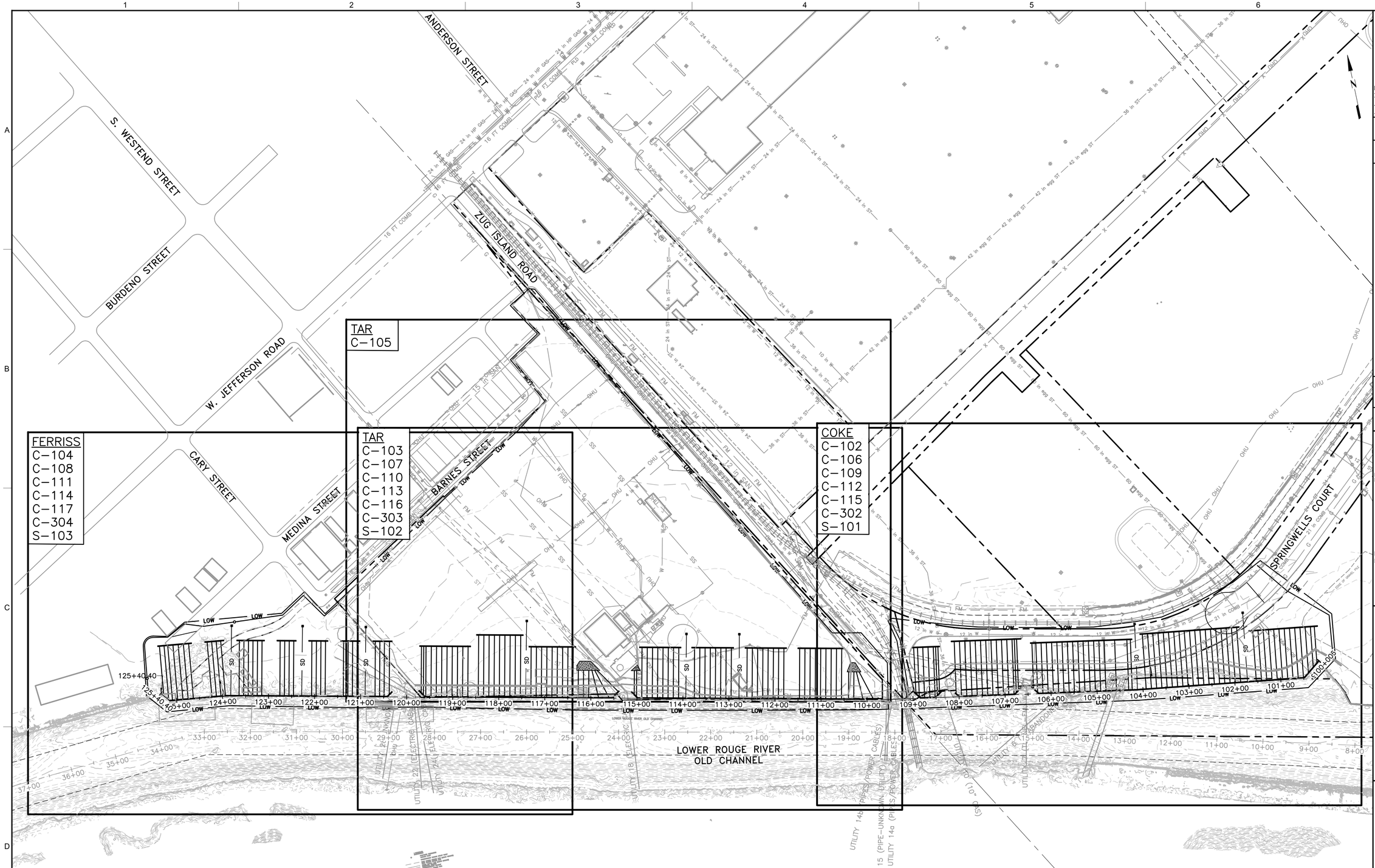
DRAWING STATUS
100% DESIGN

GENERAL
GENERAL NOTES

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME 04112
(207) 775 -5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	G-003
SHEET	3 OF 53



NOTE:

1. FOR DETAILED SITE DRAWINGS, REFER TO SHEETS REFERENCED ON THIS DRAWING.

0 50 100 200
SCALE IN FEET

Lyle N Tracy

MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

NO.	DATE	DSGN	DR	CHK	APVD
2	8/08/16	L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY
1	6/17/16	REVISION		BY	APVD
		100% DESIGN - FOR REVIEW		WJW	LNT
		90% DESIGN - CLIENT REVIEW		JVM	LNT

Honeywell
101 COLUMBIA RD. BOX 2100, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

CIVIL
OVERALL SITE PLAN

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME. 04112
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	C-101
SHEET	4 OF 53

NOTES:
1. FOR DEMOLITION NOTES SEE DRAWING G-003.

AGGREGATE DRIVE
PARCEL 10
PARCEL 9
PARCEL 7
UNDERGROUND VAULT
DETENTION POND
SPRINGWELLS COURT
ZUG ISLAND ROAD
ZUG ISLAND BRIDGE
LOWER ROUGE RIVER OLD CHANNEL
NAVIGABLE CHANNEL
EDGE OF GRAVEL PILE
GRAVEL SURFACE
CHAIN LINK FENCE
MATCH LINE SEE DRAWING C-107 FOR CONTINUATION

CUT AND CAP 8" SANITARY SEWER STUB SEE DETAIL U, DWG. C-502 FOR PIPE REMOVAL (TYP)
U C-106 | C-502
DEMOLISH/REMOVE REINFORCED CONCRETE ROADWAY
RELOCATE 12" WATER MAIN TO NEW LOCATION AS NECESSARY
PROTECT RAILROAD (TYP)
CUT, CAP AND REMOVE 24" COMBINATION STORM LINE BELOW DEMOLISHED SECTION OF SPRINGWELLS COURT
CUT AND CAP 8" SANITARY SEWER STUB
CAP AND REMOVE 36" STORM LINE AND CATCH BASINS
RELOCATE HYDRANT AND GATE VALVE
TYP C-501
TEMPORARY FENCING
CUT, CAP AND REMOVE GAS LINE
REMOVE ABANDONED 60" STORM LINE
TEMPORARILY RELOCATE SHED/BUILDING
DEMOLISH CONCRETE PAD
TEMPORARILY REMOVE AND REPLACE JERSEY BARRIERS
CUT AND REMOVE 18" COMBINATION SANITARY/STORM LINE AND ASSOCIATED STRUCTURES
LOCATE, DECOMISSION AND ABANDON UTILITY 6 PRIOR TO SHEETPILE WALL INSTALLATION
LOCATE UTILITY 10 AT RIVERBANK AND UPLAND PRIOR TO SHEETPILE WALL INSTALLATION
DEMOLISH MOORING AS NECESSARY TO INSTALL SHEETWALL
LOCATE AND PROTECT ACTIVE OVERHEAD UTILITY BRIDGE AND UTILITIES
LOCATE EXISTING WATER MAIN EXITING BUILDING
PROTECT UTILITIES AND BUILDING
PROTECT BRIDGE

UTILITY 14b (PIPES/POWER CABLES)
UTILITY 14a (PIPES/POWER CABLES)
UTILITY 10 (12" CIP)
UTILITY 9 (12 ABANDONED PIPES)
UTILITY 7 (TUNNEL-FM W, E)

0 20 40 80
SCALE IN FEET

NO.	DATE	DSGN	DR	CHK	APVD
2	8/08/16	100% DESIGN - FOR REVIEW	WJW	LNT	
1	6/17/16	90% DESIGN - CLIENT REVIEW	JVM	LNT	
		REVISION	BY	APVD	
		L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY

Lyle N Tracy
MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

Honeywell
101 COLUMBIA RD. BOX 2245, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

CIVIL

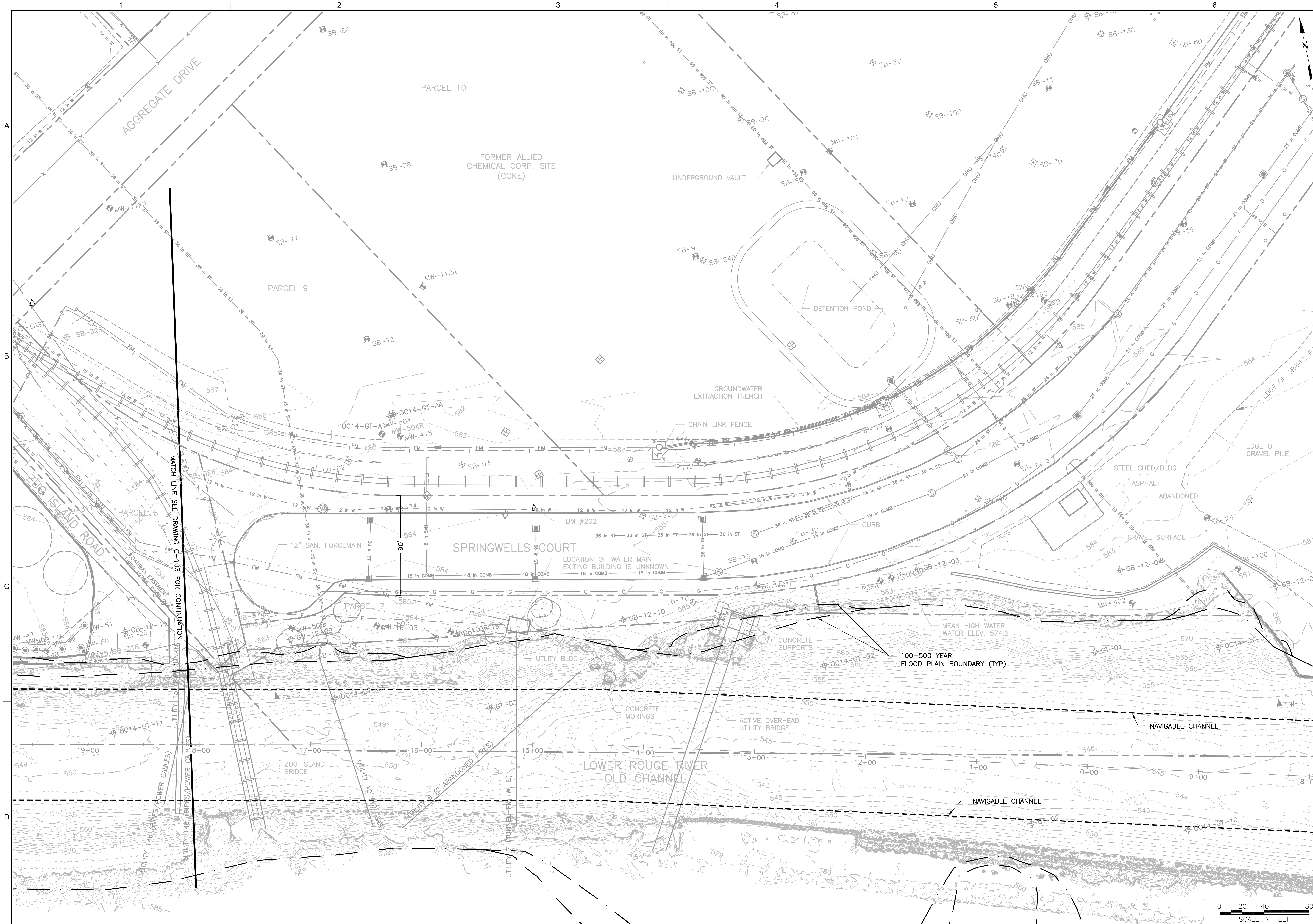
SITE DEMOLITION PLAN
(COKE)

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME, 04112
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	AUG 2016
PROJ	3293-16-1667
DWG	C-106
SHEET	9 OF 53

FILE NAME: Z:\Projects\HONEYWELL\DETROIT\LRROC\Construction Plans\C-106_Demolition -COKE.dwg PLOT DATE: Fri, 05 Aug 2016 PLOT TIME: 9:44 AM



Honeywell

101 COLUMBIA RD, BOX 2105, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

CIVIL

EXISTING CONDITIONS PLAN (COKE)

NO.	DATE	REVISION	BY	APVD
2	8/08/16	100% DESIGN - FOR REVIEW	WJW	LNT
1	6/17/16	90% DESIGN - CLIENT REVIEW	JVM	LNT

DSGN	DR	CHK	APVD
L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY

Lyle N Tracy

MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic. NUM

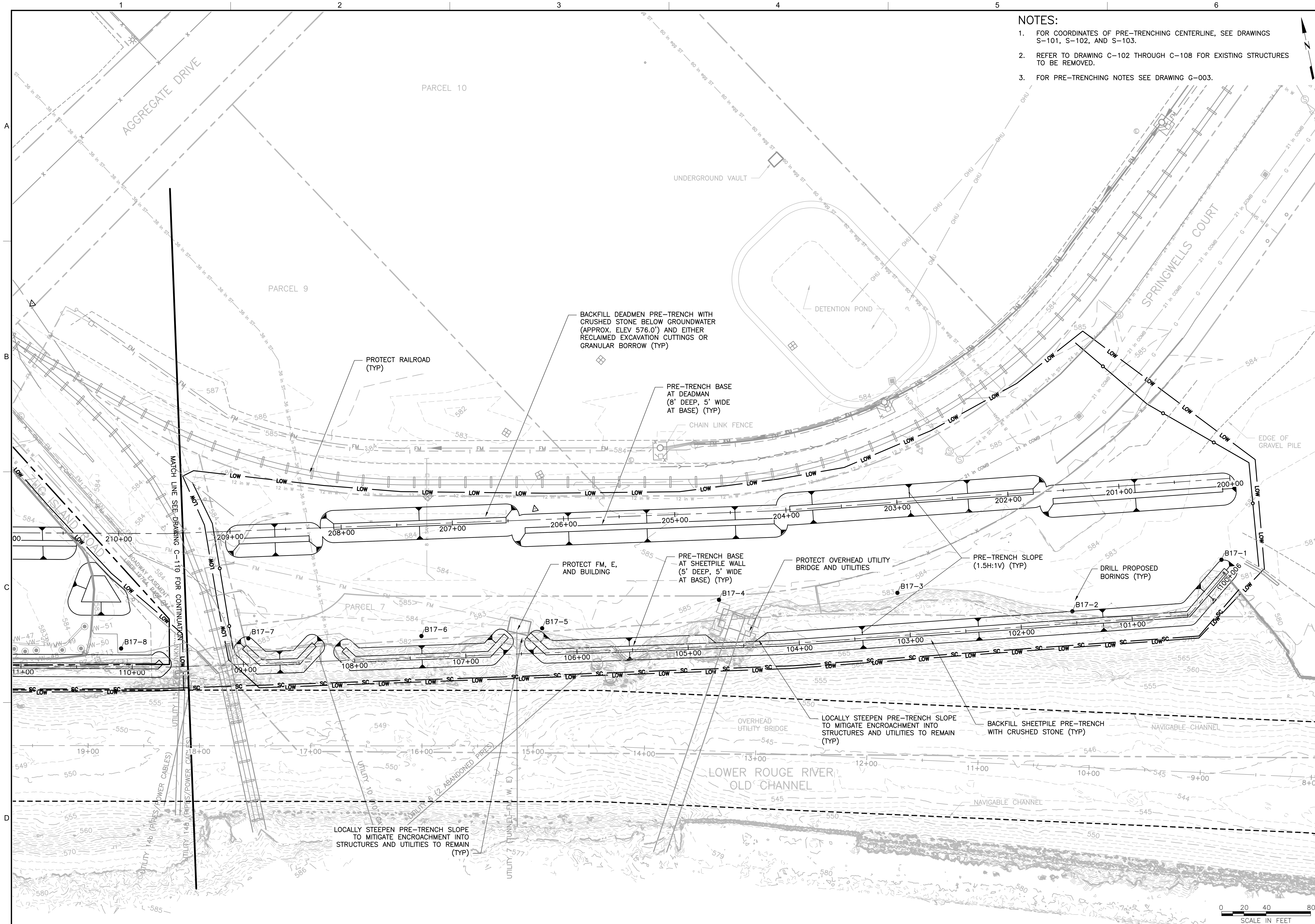
amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME, 04112
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	C-102
SHEET	5 OF 53

NOTES:

1. FOR COORDINATES OF PRE-TRENCHING CENTERLINE, SEE DRAWINGS S-101, S-102, AND S-103.
2. REFER TO DRAWING C-102 THROUGH C-108 FOR EXISTING STRUCTURES TO BE REMOVED.
3. FOR PRE-TRENCHING NOTES SEE DRAWING G-003.



2	8/08/16	100% DESIGN - FOR REVIEW	WJW	LNT
1	6/17/16	90% DESIGN - CLIENT REVIEW	JVM	LNT
NO.	DATE	REVISION	BY	APVD

DSGN L. TRACY | DR W. WHITTEN | CHK L. STIRBAN | APVD L. TRACY

Lyle N Tracy
MI PROFESSIONAL ENGINEER LICENSE NUMBER Lic. NUM

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHEETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

CIVIL
PRE-TRENCHING PLAN
(COKE)

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME, 04112
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	C-109
SHEET	12 OF 53

NOTES:

1. FOR COORDINATES OF PRE-TRENCHING CENTERLINE, SEE DRAWINGS S-101, S-102, AND S-103.
2. REFER TO DRAWING C-106 THROUGH C-108 FOR EXISTING STRUCTURES TO BE REMOVED.
3. FOR EXCAVATION NOTES SEE DRAWING G-003.

PARCEL 10
PARCEL 9
PARCEL 7
AGGREGATE DRIVE
SPRINGWELLS COURT
ISLAND ROAD
UNDERGROUND VAULT
DETENTION POND
PROTECT RAILROAD (TYP)
INSTALL PRECAST CONCRETE CATCH BASIN (TYP) — TYP C-502
CB #2 RIM 585.4 INV 576.60
CB #1 RIM 585.0 INV 576.65
INSTALL MOUNTABLE BERM (TYP) — TYP C-305
EXCAVATION LIMITS (TYP)
EDGE OF GRAVEL PILE
INSTALL 24" SD L=140', S=0.005 FT/FT
INSTALL 24" SD L=150', S=0.005 FT/FT
1.5H:1V SLOPE (TYP)
PIPE PENETRATION (TYP) — C-112 C-502
INV 575.90
INV 575.90
INV 575.90
SP-1
SP-2
NEW SHEETPILE WALL, SEE DRAWINGS S-101, S-102, AND S-103
PROTECT FM, E, AND BUILDING
PROTECT OVERHEAD UTILITY BRIDGE AND UTILITIES
OVERHEAD UTILITY BRIDGE
MEAN HIGH WATER ELEV. 574.2
NAVIGABLE CHANNEL
LOWER ROUGE RIVER OLD CHANNEL
MATCH LINE SEE DRAWING C-113 FOR CONTINUATION
UTILITY 14B (PIPES / POWER CABLES)
UTILITY 10 (GAS)
UTILITY 8 (2 ABANDONED PIPES)
UTILITY 7 (TUNNEL - FM, W, E)
x EL. 574.7
0 20 40 80
SCALE IN FEET

FILE NAME: Z:\Projects\HONEYWELL\DETROIT\LRROC\Construction Plans\C-112_Excavation -COKE.dwg PLOT DATE: Tue, 30 Aug 2016 PLOT TIME: 1:36 PM

NO.	DATE	DSGN	DR	CHK	APVD
2	8/08/16	100% DESIGN - FOR REVIEW	WJW	LNT	
1	6/17/16	90% DESIGN - CLIENT REVIEW	JVM	LNT	
		REVISION	BY	APVD	
		L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY

MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM
Lyle N Tracy

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

CIVIL
EXCAVATION PLAN
(COKE)

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME. 04112
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	C-112
SHEET	15 OF 53

PARCEL 10

PARCEL 9

AGGREGATE DRIVE

ISLAND ROAD

SPRINGWELLS COURT

UNDERGROUND VAULT

DETENTION POND

SEDIMENT BASIN

EXISTING CONCRETE HEADWALL

LOWER ROUGE RIVER OLD CHANNEL

NAVICABLE CHANNEL

EDGE OF GRAVEL PILE

FINAL GRADE TO MATCH EXISTING GRADE WITHIN LIMITS OF WORK UNLESS OTHERWISE SHOWN (TYP)

INSTALL PRECAST CONCRETE CATCH BASIN (O TYP C-502)

REMOVE TEMPORARY CATCH BASIN

CUL-DE-SAC REPLACEMENT (45'R) (R TYP C-502)

REMOVE MOUNTABLE BERM (TYP)

REMOVE TEMPORARY CATCH BASIN

REMOVE TEMPORARY 24" SD

REMOVE TEMPORARY 24" SD

CB #12
RIM 581.5
INV OUT 575.94

CB #11
RIM 581.5
INV OUT 575.94

INSTALL 24" SD
L=8', S=0.005 FT/FT

CB #9
RIM 581.0
INV OUT 576.00

INSTALL 24" SD
L=20', S=0.005 FT/FT

CB #10
RIM 580.70
INV OUT 576.00

INV 575.90

INV 575.90

INV 575.90

PIPE PENETRATION (P TYP C-502)

INSTALL 24" SD
L=20', S=0.005 FT/FT

INSTALL 24" SD
L=8', S=0.005 FT/FT

1 TYP C-502

MATCH LINE SEE DRAWING C-119 FOR CONTINUATION

UTILITY 14B (PIPES/POWER CABLES)

UTILITY 10 (GAS)

UTILITY 9 (2 ABANDONED PIPES)

UTILITY 7 (TUNNEL - FM, W, E)

0 20 40 80
SCALE IN FEET

Lyle N Tracy

MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

NO.	DATE	DSGN	DR	CHK	APVD
2	8/08/16	100% DESIGN - FOR REVIEW	JVM	LNT	
1	6/1716	90% DESIGN - CLIENT REVIEW	JVM	LNT	
		REVISION	BY	APVD	
		L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ. 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

CIVIL

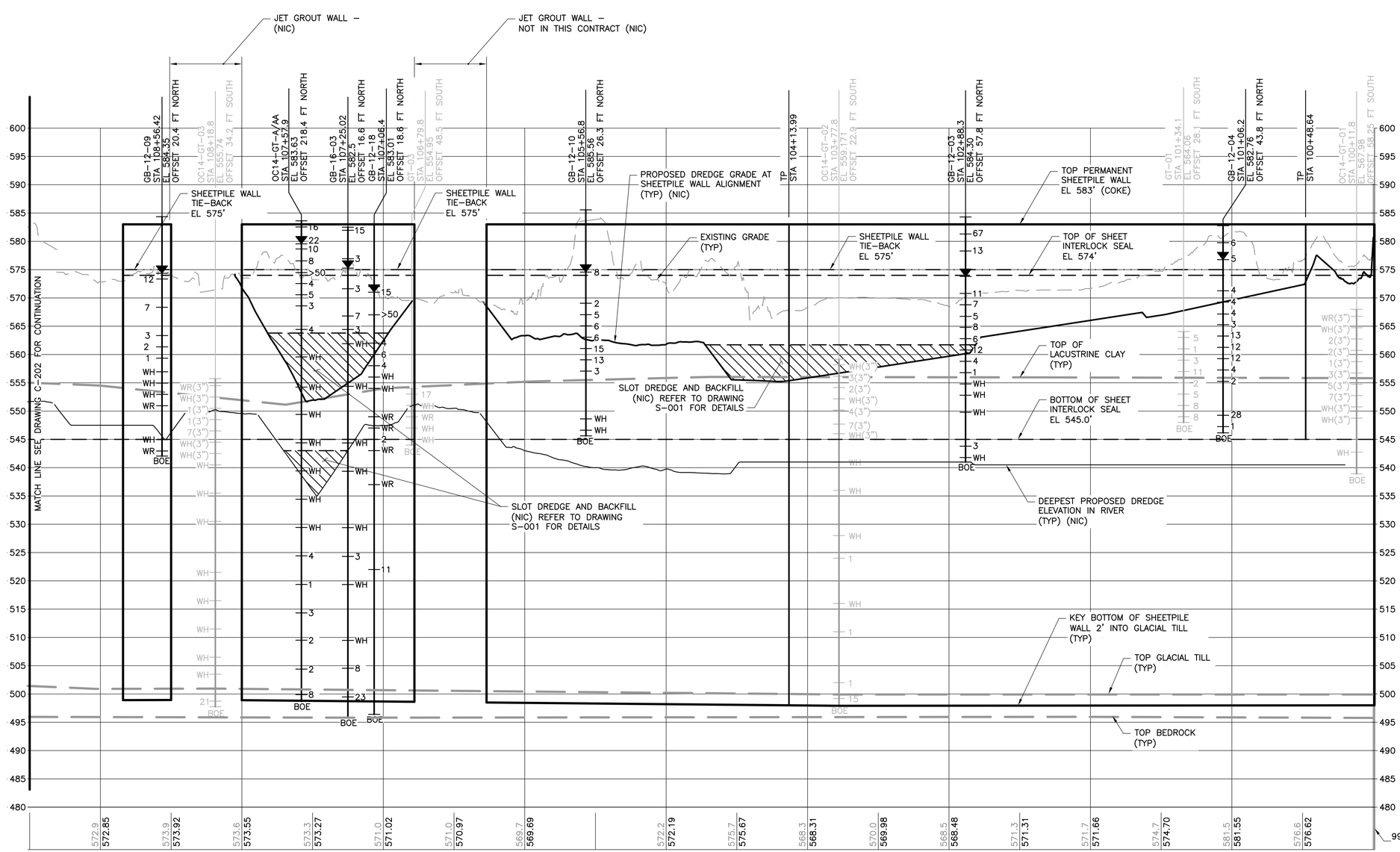
FINAL GRADING PLAN
(COKE)

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME. 04112
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	C-115
SHEET	18 OF 53

FILE NAME: Z:\Projects\HONEYWELL\DETROIT\LRROC\Construction Plans\C-115_Final Grade-COKE.dwg PLOT DATE: Wed, 31 Aug 2016 PLOT TIME: 11:01 AM



NOTE:

1. SHEETPILE LIMIT SHOWN IS THAT ALONG SHEETPILE STATION ALIGNMENT. WINGWALLS (OFFSETS) NOT SHOWN FOR CLARITY.

NO.	DATE	DSGN	DR	CHK	APVD
2	8/08/16	JVM	LNT		
1	6/17/16	JVM	LNT		
		BY	APVD		
		L. TRACY	L. STIRBAN	J. McKENZIE	L. TRACY

REVISION

1005 DESIGN - FOR REVIEW
90% DESIGN - CLIENT REVIEW

Lyle N Tracy
MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

Honeywell
101 COLUMBIA RD. BOX 2102, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

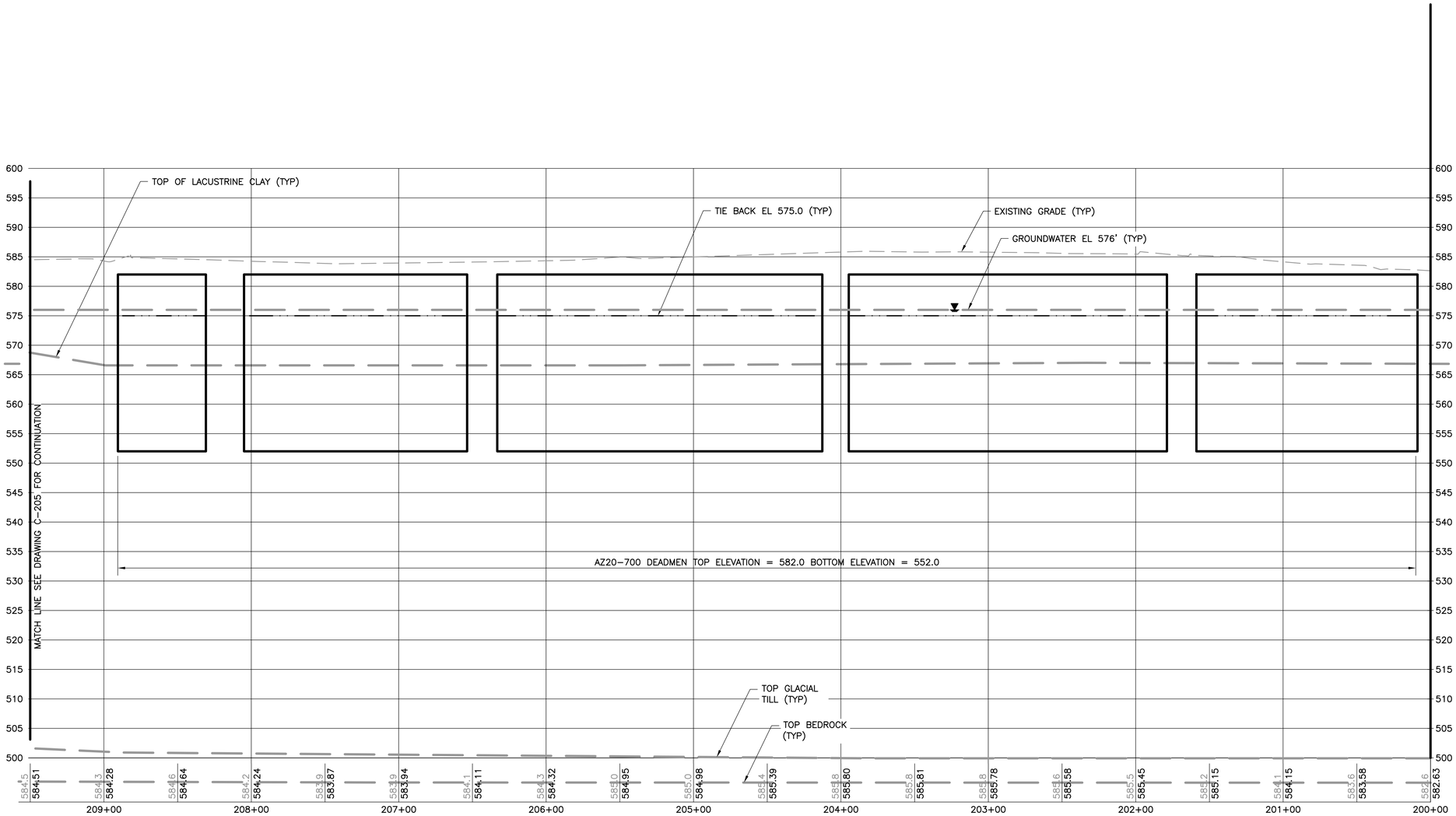
DRAWING STATUS
100% DESIGN

CIVIL
INTERPRETIVE SUBSURFACE PROFILE ALONG PERMANENT SHEET PILE ALIGNMENT (COKE)

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME. 04112
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	C-201
SHEET	21 OF 53



Lyle N Tracy

MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

NO.	DATE	DSGN	DR	CHK	APVD
2	8/08/16	L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY
1	6/17/16				

NO.	REVISION	BY	APVD
2	100% DESIGN - FOR REVIEW	JVM	LNT
1	90% DESIGN - CLIENT REVIEW	JVM	LNT

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

CIVIL

INTERPRETIVE SUBSURFACE PROFILE ALONG DEADMAN ALIGNMENT (COKE)

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME, 04112
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	C-204
SHEET	24 OF 53

EROSION AND SEDIMENTATION CONTROL NOTES:

GENERAL

1. THE FOLLOWING EROSION AND STORMWATER CONTROL MEASURES SHALL BE IMPLEMENTED TO MINIMIZE EROSION AND SEDIMENTATION AND CONTROL STORMWATER BEFORE AND DURING THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL EXERCISE SPECIAL CARE AT ALL TIMES TO LIMIT EXTENT OF DISTURBANCE, REGULARLY MONITOR THE EFFECTIVENESS OF EROSION, SEDIMENTATION, AND STORMWATER CONTROL MEASURES, AND IMMEDIATELY CORRECT ANY EROSION PROBLEMS THAT MAY DEVELOP.

2. THE CONTRACTOR MAY BE REQUESTED AND IS REQUIRED TO FURNISH AND INSTALL ADDITIONAL MEASURES AS NECESSARY TO MINIMIZE ON OR OFF SITE EROSION AND TURBIDITY PROBLEMS DURING CONSTRUCTION.

3. THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SUCH THAT ALL STORMWATER IS DIRECTED TO TEMPORARY STORMWATER CONTROL STRUCTURES.

4. ALL GRADING SHALL BE HELD TO A MAXIMUM 2:1 SLOPE WHERE PRACTICAL UNLESS OTHERWISE INDICATED.

TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES

1. SILT FENCE SHALL BE INSTALLED ALONG THE RIVERBANK DOWN GRADIENT OF ALL DEMOLITION AND DEADMAN PRETRENCH WORK, AS SHOWN ON THE DRAWINGS.

2. AUGMENTED SILT FENCE (SILT FENCE WITH HAY BALES) SHALL BE INSTALLED AS NECESSARY TO MAINTAIN EROSION AND SEDIMENT CONTROLS IF ADDITIONAL PROTECTION IS REQUIRED.

3. A FLOATING TURBIDITY CURTAIN SHALL BE INSTALLED PROXIMATE TO THE TOE OF THE RIVERBANK SLOPE IN THE LOWER ROUGE RIVER OLD CHANNEL PRIOR TO PRE TRENCHING AND DURING SHEETPILE INSTALLATION, AS SHOWN ON THE DRAWINGS.

TEMPORARY STORMWATER WATER CONTROL MEASURES

1. MOUNTABLE STORMWATER DIVERSION BERMS SHALL BE INSTALLED AND MAINTAINED ALONG THE NORTHERN PERIMETER OF THE EXCAVATION LIMITS, AS SHOWN ON THE DRAWINGS PRIOR TO ANY INVASIVE EXCAVATION OR PRE TRENCHING WORK.

2. TEMPORARY CATCH BASINS AND STORM DRAIN PIPE SHALL BE INSTALLED TO THE NORTH OF THE MOUNTABLE BERMS. STORM DRAINS SHALL DIRECTLY DISCHARGE SURFACE WATER COLLECTED IN THE CATCH BASINS INTO THE LOWER ROUGE RIVER OLD CHANNEL, AS SHOWN ON THE DRAWINGS.

3. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED PER MICHIGAN REGULATIONS.

SILT FENCE/AUGMENTED SILT FENCE

1. SILT FENCE SHALL BE INSTALLED PRIOR TO DEMOLITION AND DEADMAN PRETRENCHING WORK. SILT FENCE SHALL BE REMOVED FOLLOWING THE INSTALLATION OF THE PERMANENT SHEETPILE WALL.

2. THIS SEDIMENT BARRIER UTILIZES STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED.

3. THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36 INCHES (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).

4. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT SUPPORT POST, WITH A MINIMUM 6–INCH OVERLAP, AND SECURELY SEALED.

5. POSTS SHALL BE SPACED 8 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND. WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET.

6. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.

7. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

8. STANDARD STRENGTH OF FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.

9. WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ITEM (7) APPLYING.

10. THE TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.

11. BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.

12. ALL BALES SHALL BE EITHER WIRE–BOUND OR STRING–TIED. BALES SHALL BE INSTALLED SO THAT BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES TO PREVENT DETERIORATION OF THE BINDINGS.

13. THE BARRIER SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED THE WIDTH OF A BALE AND THE LENGTH OF THE PROPOSED BARRIER TO A MINIMUM DEPTH OF 4 INCHES. AFTER THE BALES ARE STAKED AND CHINKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AGAINST THE BARRIER. BACKFILL SOIL SHALL CONFORM TO THE GROUND LEVEL ON THE DOWNHILL SIDE AND SHALL BE BUILD UP TO 4 INCHES AGAINST THE UPHILL SIDE OF THE BARRIER. IDEALLY, BALES SHOULD BE PLACED 10 FEET AWAY FROM THE TOE OF SLOPE.

14. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO STAKES DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN DEEP ENOUGH INTO THE GROUND TO SECURELY ANCHOR THE BALES.

15. THE GAPS BETWEEN BALES SHALL BE CHINKED (FILLED BY WEDGING) WITH STRAW TO PREVENT WATER FROM ESCAPING BETWEEN THE BALES. (LOOSE STRAW SCATTERED OVER THE AREA IMMEDIATELY UPHILL FROM A STRAW BALE BARRIER TENDS TO INCREASE BARRIER EFFICIENCY.)

16. IN SLOPING AREAS WHERE SURFACE FLOW FOLLOWS THE BALE LINE, PERPENDICULAR BALE CHECKS SHALL BE INSTALLED AT APPROPRIATE INTERVALS (50 FEET MAXIMUM).

17. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED PER STATE OF MICHIGAN REGULATIONS.

TURBIDITY CURTAIN

1. TURBIDITY CURTAINS SHALL BE INSTALLED PRIOR TO PERMANENT SHEETPILE PRETRENCHING WORK. TURBIDITY CURTAIN SHALL BE REMOVED FOLLOWING THE INSTALLATION OF THE PERMANENT SHEETPILE WALL.

2. TURBIDITY CURTAINS SHALL BE INSTALLED, INSPECTED, AND MAINTAINED BY THE CONTRACTOR THROUGHOUT THE PERFORMANCE OF THE WORK.

MOUNTABLE STORMWATER DIVERSION BERMS

1. MOUNTABLE BERMS SHALL BE CONSTRUCTED PRIOR TO COMMENCEMENT OF SOIL DISTURBANCE. THE BERMS SHALL BE REMOVED FOLLOWING THE COMPLETION OF FINAL GRADING.

2. MOUNTABLE BERMS SHALL BE CONSTRCUTED OF BITUMINOUS CONCRETE, A MAXIMUM OF 6–INCHES IN HEIGHT, AND A MINIMUM OF 12–INCHES IN WIDTH.

CATCH BASINS AND STORM DRAINS

1. CATCH BASINS AND STORM DRAINS SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF SOIL DISTURBANCE. TEMPORARY CATCH BASINS AND STORM DRAINS SHALL BE REMOVED PRIOR TO FINAL GRADING.

2. CATCH BASINS SHALL CONSIST OF 4–FOOT DIAMETER PRECAST CONCRETE MANHOLES, AS SHOWN ON THE DRAWINGS.

3. STORM DRAINS SHALL CONSIST OF 24–INCH DIAMETER DR17 HDPE PIPE, AS SHOWN ON THE DRAWINGS.

INSPECTION AND MAINTENANCE

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING, MONITORING, MAINTAINING, REPAIRING, REPLACING, AND REMOVING ALL OF THE EROSION, SEDIMENT, AND STORMWATER CONTROL MEASURES AND STRUCTURES REQUIRED FOR THE SUCCESSFUL EXECUTION OF THIS PROJECT. MAINTENANCE MEASURES SHALL BE IMPLEMENTED AS NECESSARY DURING THE ENTIRE DURATION OF THE PROJECT.

2. AT A MINIMUM ALL EROSION, SEDIMENT, AND STORMWATER CONTROL MEASURES SHALL BE INSPECTED WEEKLY. SILT FENCE, AUGMENTED SILT FENCE, AND OTHER FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL (GREATER THAN 1/2 INCH IN 24 HOURS) AND AT LEAST DAILY DURING PROLONGED RAINFALL. REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT SHOULD BE REMOVED AFTER EACH STORM EVENT AND MUST BE REMOVED WHEN DEPOSITS REACH 1/2 THE HEIGHT OF THE BARRIER. SHOULD ANY SEDIMENT BARRIER PROVE TO BE INEFFECTIVE, THE CONTRACTOR SHALL AUGMENT THE BARRIER AS NECESSARY AND ACCEPTABLE TO THE ENGINEER. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHALL BE REPLACED WITH A TEMPORARY CHECK DAM AT THE DIRECTION OF THE ENGINEER.

3. SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.

4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE.

5. MAINTAIN ALL MEASURES IN EFFECTIVE OPERATING CONDITION FOR THE REQUIRED DURATION. IF BEST MANAGEMENT PRACTICES (BMPS) NEED TO BE MAINTAINED OR MODIFIED, ADDITIONAL BMPS ARE NECESSARY, OR OTHER CORRECTIVE ACTION IS NEEDED, IMPLEMENTATION MUST BE COMPLETED WITHIN 7 CALENDAR DAYS AND PRIOR TO ANY STORM EVENT (RAINFALL).

6. KEEP A LOG (REPORT) SUMMARIZING THE INSPECTIONS AND ANY CORRECTIVE ACTION TAKEN. THE LOG MUST INCLUDE THE NAME(S) AND QUALIFICATIONS OF THE PERSON MAKING THE INSPECTIONS, THE DATE(S) OF THE INSPECTIONS, AND MAJOR OBSERVATIONS ABOUT THE OPERATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS, MATERIALS STORAGE AREAS, AND VEHICLE ACCESS POINTS TO THE PARCEL. MAJOR OBSERVATIONS MUST INCLUDE BMPS THAT NEED MAINTENANCE, BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATION(S) WHERE ADDITIONAL BMPS ARE NEEDED. FOR EACH BMP REQUIRING MAINTENANCE, BMP NEEDING REPLACEMENT, AND LOCATION NEEDING ADDITIONAL BMPS, NOTE IN THE LOG THE CORRECTIVE ACTION TAKEN AND WHEN IT WAS TAKEN.

7. THE LOG MUST BE MADE ACCESSIBLE TO MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION STAFF AND A COPY MUST BE PROVIDED UPON REQUEST. COPIES OF THE LOGS SHALL BE RETAINED FOR A PERIOD OF AT LEAST THREE YEARS FROM THE COMPLETION OF THE WORK.

TEMPORARY STABILIZATION

1. ONLY THOSE AREAS UNDER ACTIVE CONSTRUCTION SHALL BE CLEARED AND LEFT IN AN UNTREATED OR UNVEGETATED CONDITION. PERMANENT SEEDING OR FINAL STABILIZATION, WHERE REQUIRED, SHALL BE CARRIED OUT IMMEDIATELY AFTER FINAL GRADING IS COMPLETED.

2. TOPSOIL AND OTHER CONSTRUCTION MATERIALS SHALL BE STOCKPILED WHEN NECESSARY IN AREAS WHICH HAVE MINIMUM POTENTIAL FOR EROSION AND WILL BE KEPT AS FAR AS POSSIBLE FROM WETLAND AREAS, EXISTING DRAINAGE COURSES, ETC. THE BASE OF ALL STOCKPILES SHALL BE CONTAINED BY SILT FENCE. ALL STOCKPILES EXPECTED TO BE IN PLACE AND UNDISTURBED FOR MORE THAN 30 DAYS SHALL BE EITHER TREATED WITH ANCHORED MULCH OR SEEDED WITH CONSERVATION MIX AND MULCHED IMMEDIATELY.

FINAL (PERMANENT) STABILIZATION

1. THE FORMER TAR SITE SHALL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOLLOWING FINAL GRADING.

2. THE FORMER COKE SITE AND FERRISS MARINE SITE TOPSOIL SURFACE SHALL BE SEEDED FOLLOWING FINAL GRADING.

3. TOPSOIL UNIFORM APPLICATION TO A DEPTH OF 4" (FINISHED DEPTH) SHALL BE SPREAD OVER AREAS TO BE SEEDED.

4. IF FINAL GRADING IS ACHIEVED DURING THE NORMAL GROWING SEASON (4/15 TO 9/15), PERMANENT SEEDING SHALL BE PERFORMED.

5. PERMANENT SEEDING: REFER TO SPECIFICATION 02900 "TOPSOIL AND SEEDING" FOR ADDITIONAL INFORMATION.

6. AFTER PERMANENT SEEDING HAS BEEN ACCOMPLISHED, THE SITE SHALL BE INSPECTED EVERY 14 DAYS UNTIL 90% COVER HAS BEEN ESTABLISHED. RESEEDING SHALL BE CARRIED OUT BY THE CONTRACTOR WITHIN 10 DAYS OF DETERMINATION/NOTIFICATION THAT THE EXISTING CATCH IS INADEQUATE.

7. CONSTRUCTION SHALL BE PLANNED SO THAT SEEDING IS PERFORMED BETWEEN 4/15 AND 9/15. SHOULD SEEDING BE NECESSARY OUTSIDE THOSE DATES, THE FOLLOWING PROCEDURE SHALL BE IMPLEMENTED:

A. ONLY UNFROZEN TOPSOIL SHALL BE USED.

B. PLACEMENT OF TOPSOIL, SEED, AND MULCH SHALL NOT BE PERFORMED OVER SNOW OR ICE COVER. IF SNOW EXISTS, IT MUST BE REMOVED PRIOR TO PLACEMENT OF SEED.

C. WHERE PERMANENT SEED IS NECESSARY, ANNUAL WINTER RYE (1.2 LBS/1,000 SF) SHALL BE ADDED TO THE PERMANENT SEED MIX.

D. AFTER PERMANENT SEEDING HAS BEEN ACCOMPLISHED, THE SITE SHALL BE INSPECTED EVERY 14 DAYS UNTIL 90% COVER HAS BEEN ESTABLISHED. RESEEDING SHALL BE CARRIED OUT BY THE CONTRACTOR WITHIN 10 DAYS OF DETERMINATION/NOTIFICATION THAT THE EXISTING CATCH IS INADEQUATE.

ADDITIONAL NOTES:

STABILIZED CONSTRUCTION ACCESS

1. STABILIZED CONSTRUCTION ACCESS SHALL BE INSTALLED TO PREVENT SEDIMENT FROM DISTURBED WORK AREAS ENTERING PAVED AREAS.

2. THE TEMPORARY CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AS SHOWN ON THE DRAWINGS.

DUST CONTROL

1. DEFINITION: THE CONTROL OF DUST ON CONSTRUCTION SITES AND ROADS.

2. PURPOSE: TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, AND REDUCE THE PRESENCE OF DUST WHICH MAY CAUSE OFF–SITE DAMAGE, BE A HEALTH HAZARD TO HUMANS, WILDLIFE AND PLANT LIFE, OR BECOME A TRAFFIC SAFETY HAZARD.

3. APPLICABILITY: TO AREAS SUBJECT TO DUST BLOWING AND SOIL MOVEMENT WHERE ON–SITE AND OFF–SITE DAMAGE IS LIKELY TO OCCUR IF PREVENTIVE MEASURES ARE NOT TAKEN.

4. ENVIRONMENTAL CONSIDERATIONS: AIRBORNE SOIL PARTICLES CAN BE A SOURCE OF POLLUTION AS WELL AS A NUISANCE FACTOR.

5. PLANNING CONSIDERATIONS: USE TRAFFIC CONTROL TO RESTRICT TRAFFIC TO PREDETERMINED ROUTES. MAINTAIN AS MUCH NATURAL VEGETATION AS IS PRACTICABLE. USE PHASING OF CONSTRUCTION TO REDUCE THE AREA OF LAND DISTURBED AT ANY ONE TIME. THE USE OF TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, PERMANENT VEGETATIVE COVER, OR SODDING WILL REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILDUP. STATIONARY SOURCES OF DUST, I.E., ROCK CRUSHERS, SHOULD UTILIZE FINE WATER SPRAYS TO CONTROL DUST.

6. MATERIALS SPECIFICATIONS:

A. WATER: THE EXPOSED SOIL SURFACE SHOULD BE MOISTENED PERIODICALLY WITH ADEQUATE WATER TO CONTROL DUST.

B. STONE: COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL. IN AREAS ADJACENT TO WATERWAYS, USE CHEMICALLY STABLE AGGREGATE.

7. MAINTENANCE: WHEN TEMPORARY DUST CONTROL MEASURE ARE USED, REPETITIVE TREATMENT SHALL BE APPLIED AS NEEDED TO ACCOMPLISH CONTROL.

8. REFER TO SPECIFICATION 01560 "DUST CONTROL" FOR ADDITIONAL INFORMATION.

DEWATERING

1. DEWATERING OPERATIONS MUST BE CONDUCTED IN ACCORDANCE WITH SPECIFICATION 02680 "DEWATERING" AND SHALL NOT DISCHARGE DIRECTLY INTO SURFACE WATERS.

Lyle N Tracy
MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

NO.	DATE	REVISION	CHK	APVD	BY
1	6/17/16	90% DESIGN - CLIENT REVIEW	JVM	LNT	WJW
2	8/8/16	100% DESIGN - FOR REVIEW	WJW	LNT	BY
DSGN	L. TRACY	DR	J. McKENZIE	CHK	L. STIRBAN
				APVD	L. TRACY

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

CIVIL

SOIL EROSION AND SEDIMENTATION CONTROL NOTES

amec foster wheeler
Environment & Infrastructure, Inc.
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Portland, ME, 04112
(207) 775 - 5401

VERIFY SCALE
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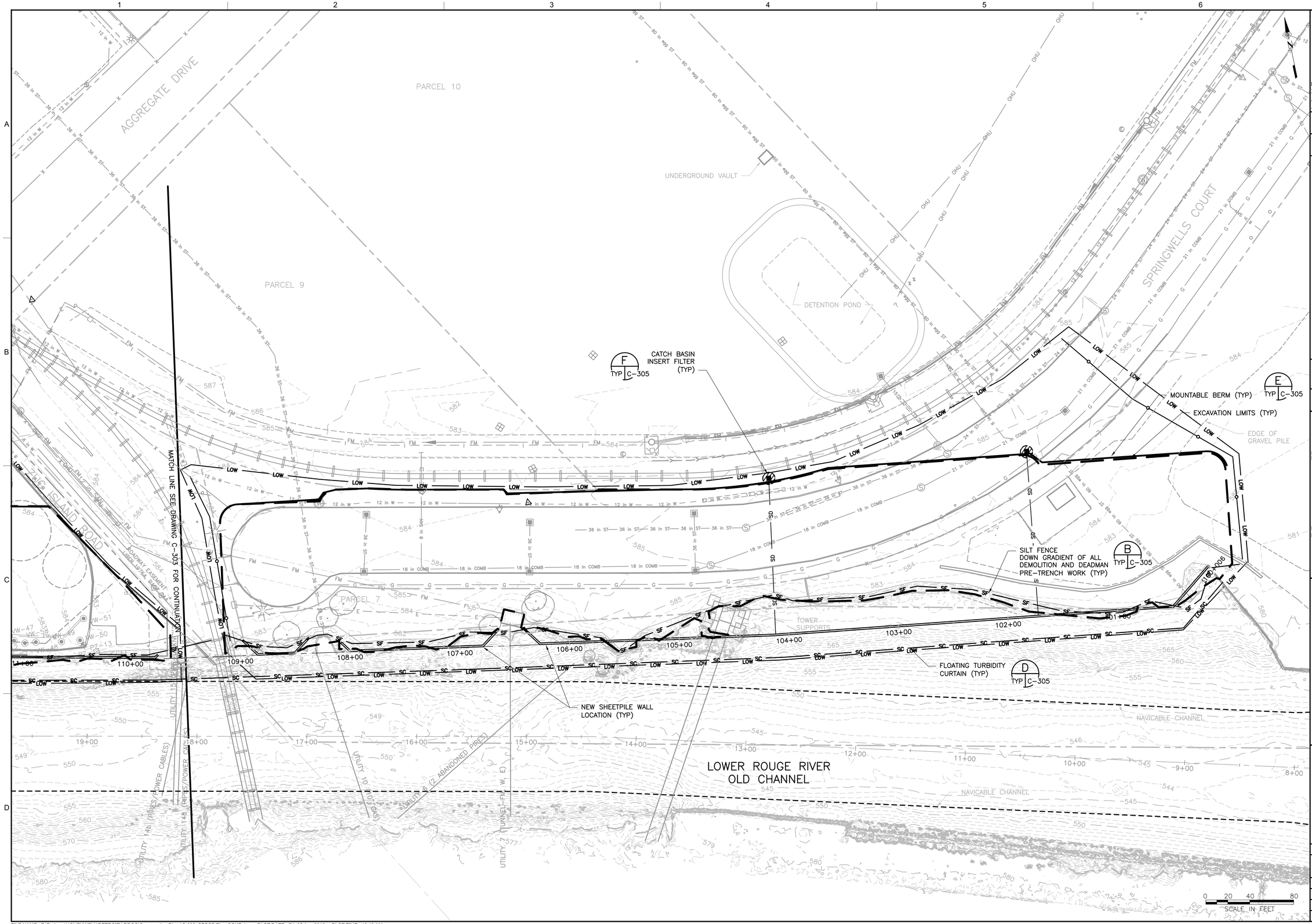
DATE JUNE 2016
PROJ 3293-16-1667
DWG C-301
SHEET 27 OF 53



NO.	DATE	DSGN	DR	CHK	APVD
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1	6/17/16	90% DESIGN - CLIENT REVIEW	JVM	LNT	
		REVISION	BY	APVD	
	L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY	

Lyle N Tracy
MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHEETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

CIVIL

SOIL EROSION AND SEDIMENTATION CONTROL PLAN (COKE)

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DATE	JUNE 2016
PROJ	3293-16-1667
DWG	C-302
SHEET	28 OF 53

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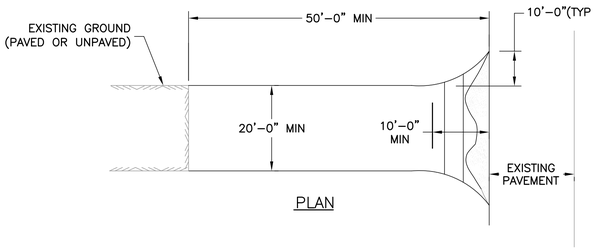
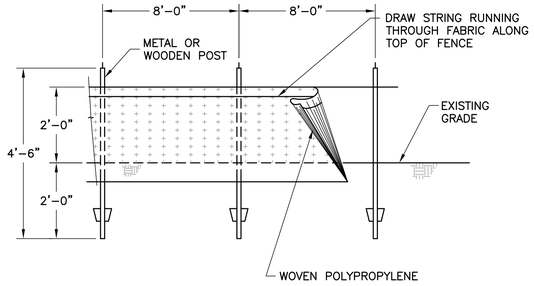
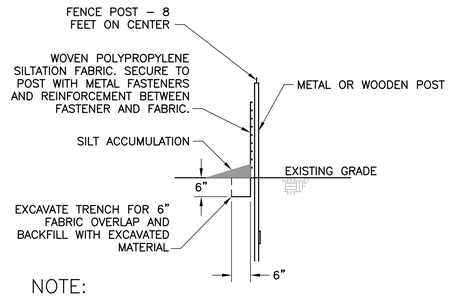


STABILIZED CONSTRUCTION ACCESS (A)

NTS

C–105 | C–305





NOTE:

WHERE REQUIRED AT CRITICAL LOCATIONS, AUGMENTED SILTATION FENCE OR SILTATION FENCE REINFORCED WITH HOG OR CHICKEN WIRE OR INTEGRAL PLASTIC MESH REINFORCING MAY BE USED.

SILTATION FENCE (B)

NTS

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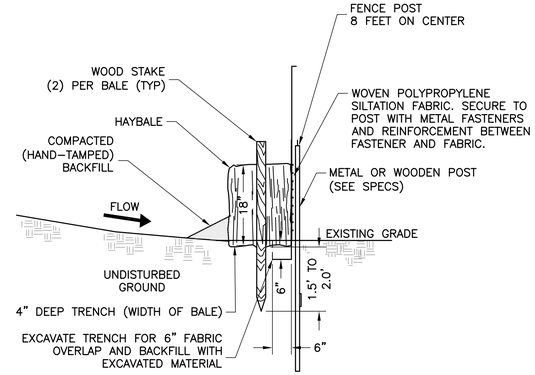
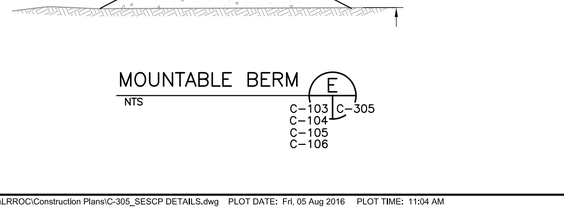


AUGMENTED SILTATION FENCE (C)

NTS

C–302 | C–305
C–303
C–304



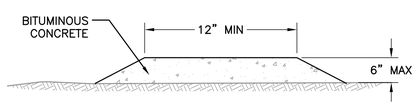
NOTES:

1. THE SILT CURTAIN SHALL BE DEPLOYED PRIOR TO DISTURBING THE RIVER BANK, BED, OR UPLAND SOILS.
2. THE SILT CURTAIN SHALL WITHSTAND A VELOCITY OF UP TO 5 FT/SEC.

FLOATING TURBIDITY CURTAIN (D)

NTS

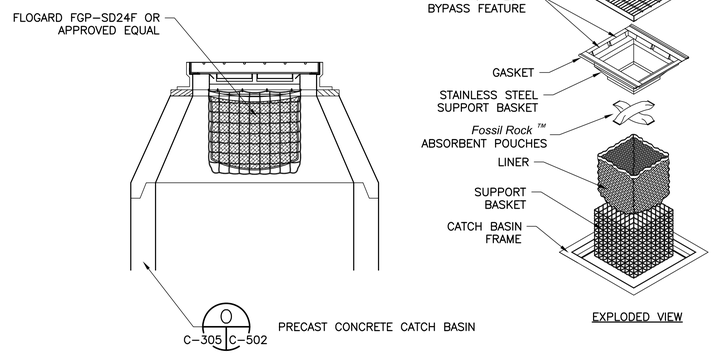
C–302 | C–305
C–303
C–304



MOUNTABLE BERM (E)

NTS

C–103 | C–305
C–104
C–105
C–106



PRECAST CONCRETE CATCH BASIN (O)

C–305 | C–502

NOTES:

1. Filter insert shall have a high flow bypass feature.
2. Filter support frame shall be constructed from stainless steel Type 304.
3. Filter medium shall be *Fossil Rock ™*, installed and maintained in accordance with manufacturer specifications.
4. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.

CATCH BASIN INSERT FILTER (F)

NTS

TYP | C–305

Lyle N Tracy

MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

NO.	DATE	DSGN	DR	CHK	APVD	BY
2	8/08/16	L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY	WJW LNT
1	6/17/16					JVM LNT

REVISION

100% DESIGN - FOR REVIEW
90% DESIGN - CLIENT REVIEW

Honeywell
101 COLUMBIA RD. BOX 2102, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

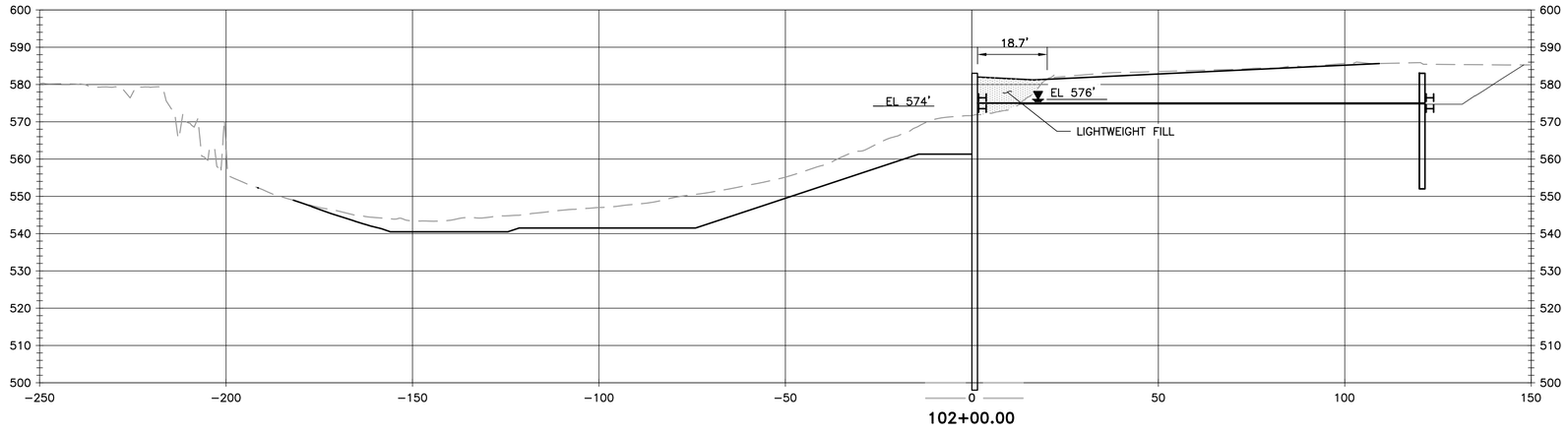
CIVIL

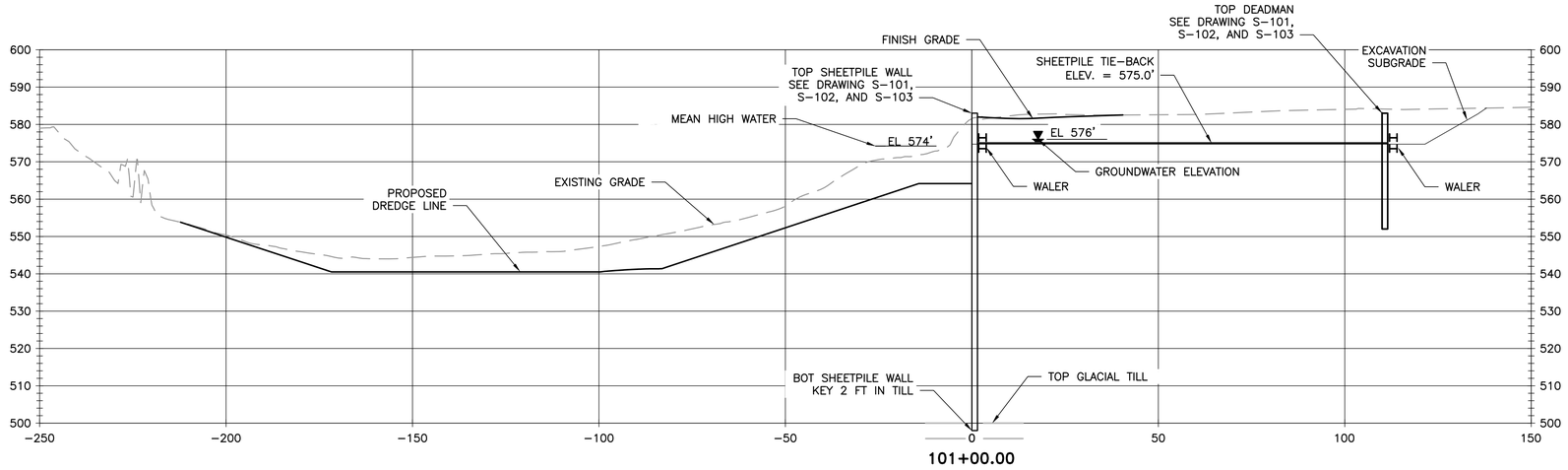
SOIL EROSION AND SEDIMENTATION
CONTROL DETAILS

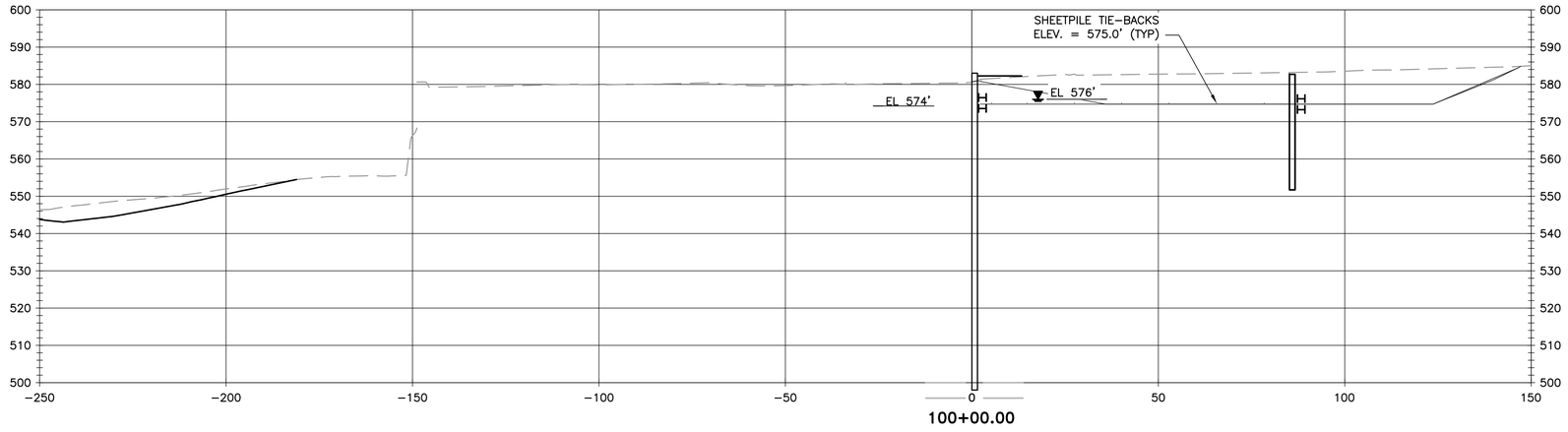
amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME, 04112
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	C-305
SHEET	31 OF 53







NOTES

1. BACKFILL DETAILS, EXCEPT LIGHTWEIGHT FILL, NOT SHOWN FOR CLARITY. SEE TYPICAL BACKFILL SECTION 1 ON DRAWING C-502 FOR DETAILS.
2. LIGHTWEIGHT FILL SHOWN FOR CLARIFICATION OF TYPICAL BACKFILL SECTION 1 ON DRAWING C-502.
3. FOR EXCAVATION LIMIT DETAILS SEE DRAWINGS C -115 THROUGH C-117.
4. WALERS SHOWN NOT TO SCALE FOR CLARITY.
5. DREDGE LINE SHOWN FOR INFORMATION PURPOSES – NOT IN THIS CONTRACT.

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SCALE IN FEET

Lyle N Tracy
MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
2	8/08/16	L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY	JVM	LNT
1	6/17/16					JVM	LNT
			REVISION				
			90% DESIGN - CLIENT REVIEW				
			100% DESIGN - FOR REVIEW				

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DRAWING STATUS
100% DESIGN

CIVIL

CROSS SECTIONS
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VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
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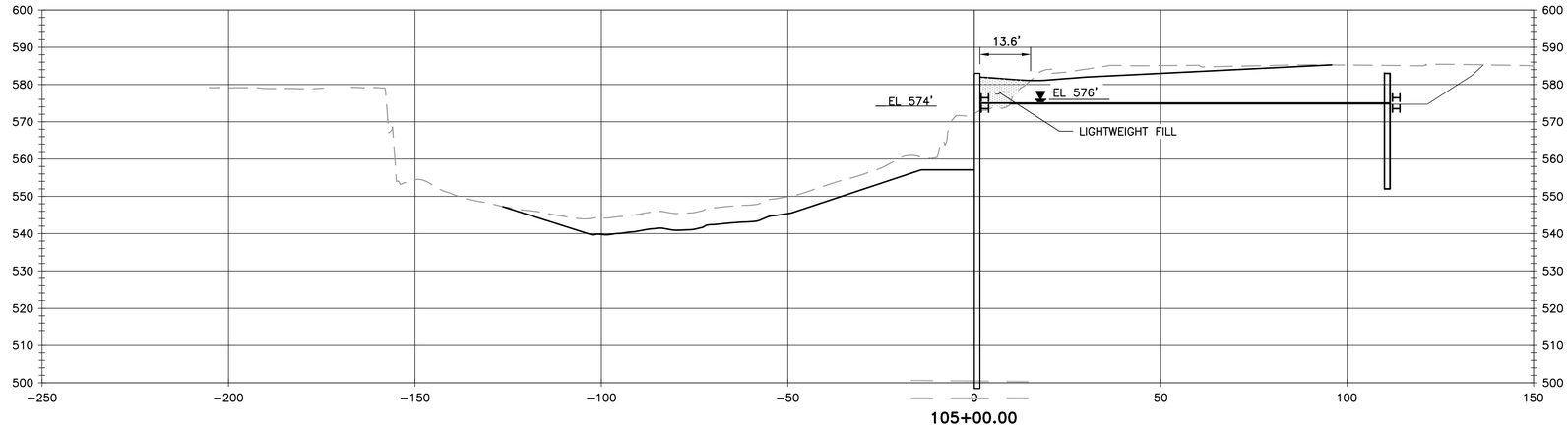
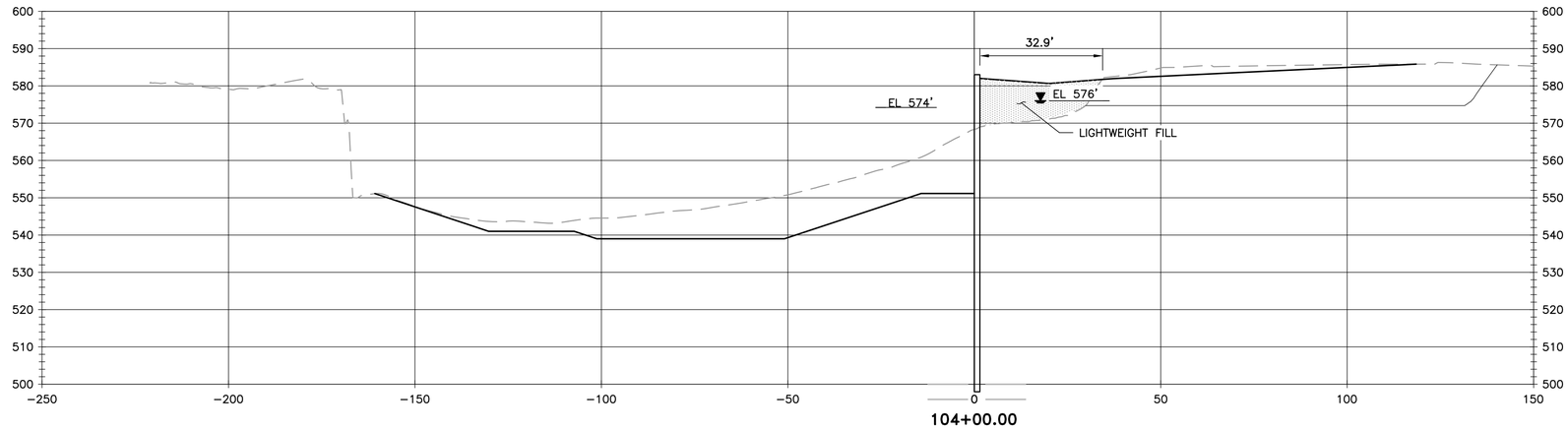
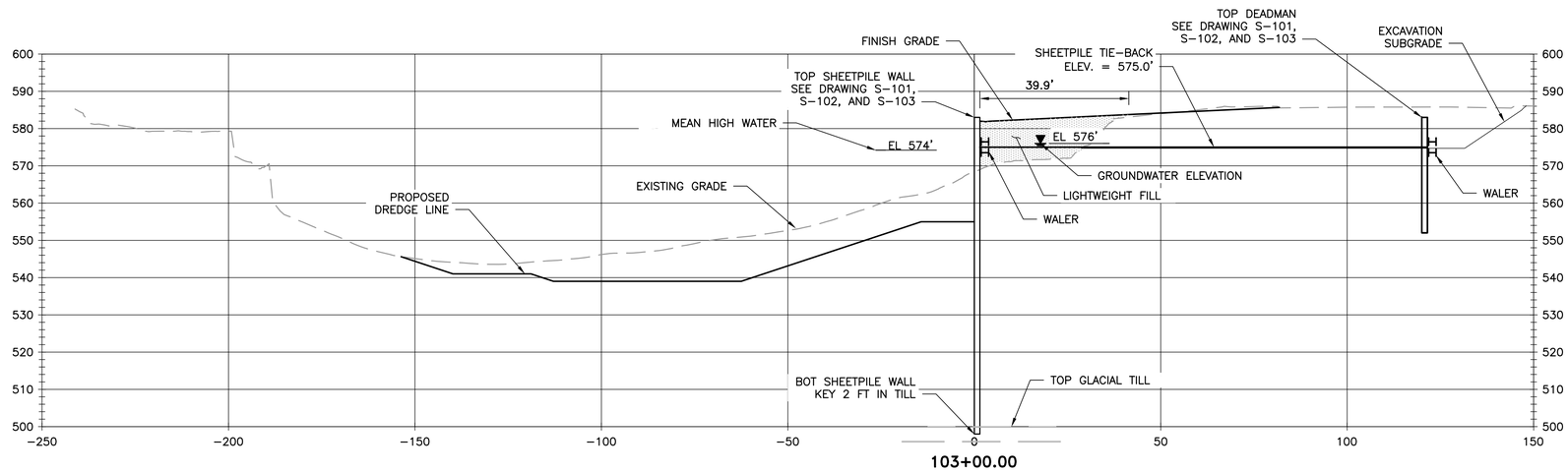
DATE	JUNE 2016
PROJ	3293-16-1667
DWG	C-401
SHEET	32 OF 53

FILE NAME: Z:\Projects\HONEYWELL\DETROIT\LRROC\Construction Plans\C-401_CROSS SECTIONS.dwg PLOT DATE: Wed, 31 Aug 2016 PLOT TIME: 10:21 AM







NOTES

1. BACKFILL DETAILS, EXCEPT LIGHTWEIGHT FILL, NOT SHOWN FOR CLARITY. SEE TYPICAL BACKFILL SECTION 1 ON DRAWING C-502 FOR DETAILS.
2. LIGHTWEIGHT FILL SHOWN FOR CLARIFICATION OF TYPICAL BACKFILL SECTION 1 ON DRAWING C-502.
3. FOR EXCAVATION LIMIT DETAILS SEE DRAWINGS C -115 THROUGH C-117.
4. WALERS SHOWN NOT TO SCALE FOR CLARITY.
5. DREDGE LINE SHOWN FOR INFORMATION PURPOSES – NOT IN THIS CONTRACT.

0 10 20 40
SCALE IN FEET

Lyle N Tracy
MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

NO.	DATE	DSGN	DR	CHK	APVD
2	8/08/16	L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY
1	6/17/16				

BY	APVD
JVM	LNT
JVM	LNT

100% DESIGN - FOR REVIEW
90% DESIGN - CLIENT REVIEW
REVISION

Honeywell
101 COLUMBIA RD. BOX 2245, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

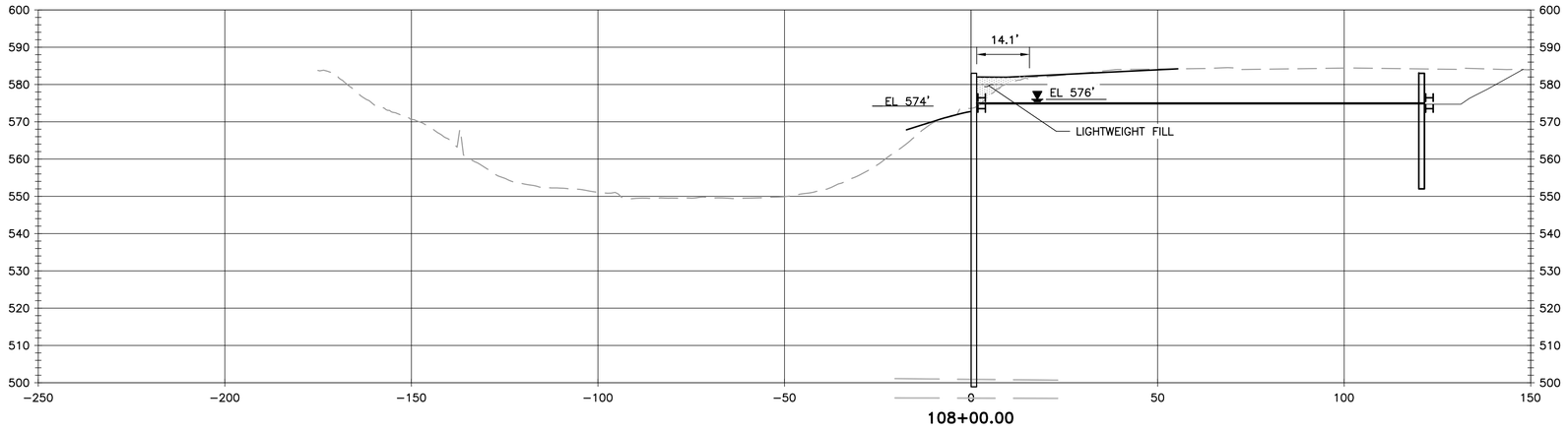
CIVIL
CROSS SECTIONS
STA 103+00 TO STA 105+00

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME, 04112
(207) 775 - 5401

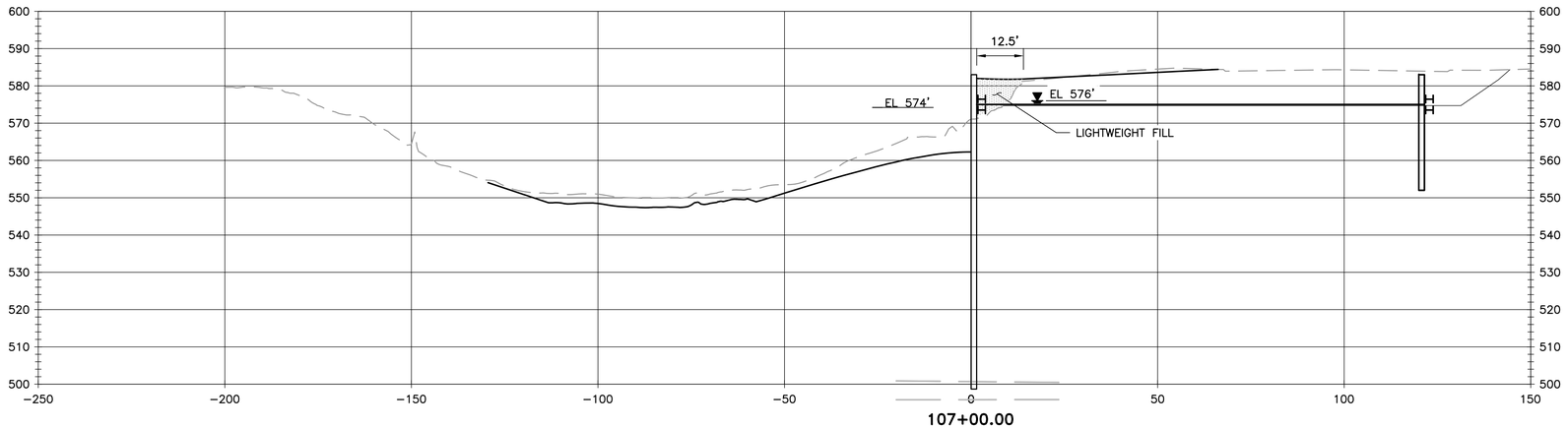
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	C-402
SHEET	33 OF 53

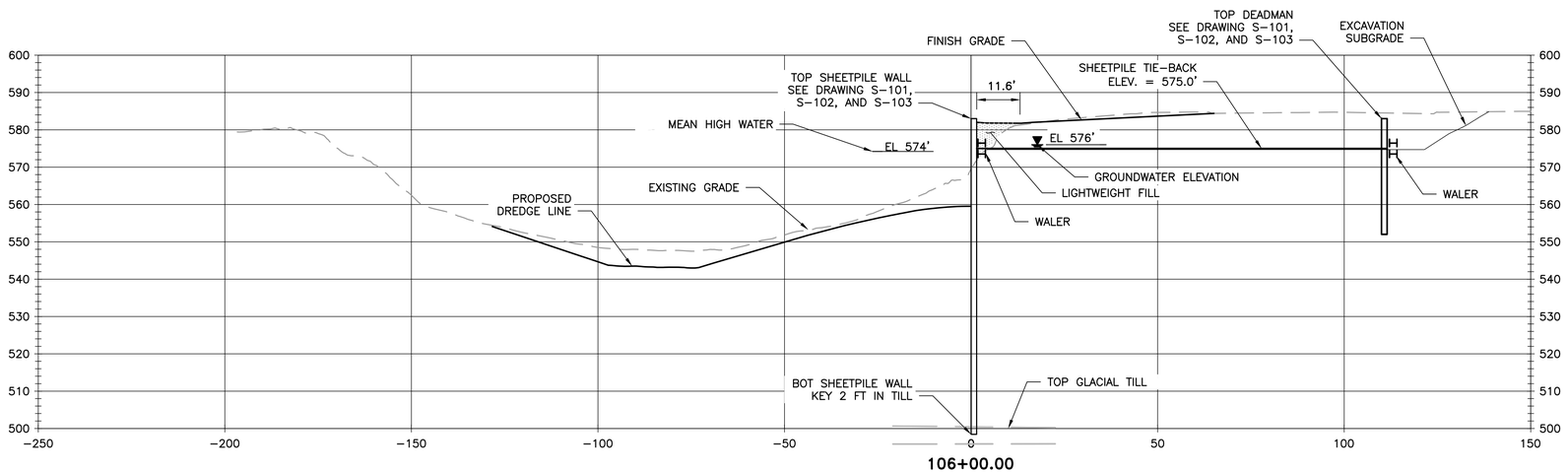
FILE NAME: Z:\Projects\HONEYWELL\DETROIT\LRROC\Construction Plans\C-402_CROSS SECTIONS.dwg PLOT DATE: Wed, 31 Aug 2016 PLOT TIME: 10:25 AM



108+00.00



107+00.00



106+00.00

0 10 20 40
SCALE IN FEET

NOTES

1. BACKFILL DETAILS, EXCEPT LIGHTWEIGHT FILL, NOT SHOWN FOR CLARITY. SEE TYPICAL BACKFILL SECTION 1 ON DRAWING C−502 FOR DETAILS.
2. LIGHTWEIGHT FILL SHOWN FOR CLARIFICATION OF TYPICAL BACKFILL SECTION 1 ON DRAWING C−502.
3. FOR EXCAVATION LIMIT DETAILS SEE DRAWINGS C −115 THROUGH C−117.
4. WALERS SHOWN NOT TO SCALE FOR CLARITY.
5. DREDGE LINE SHOWN FOR INFORMATION PURPOSES – NOT IN THIS CONTRACT.

Lyle N Tracy
MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
2	8/08/16	L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY	JVM	LNT
1	6/17/16					JVM	LNT

100% DESIGN - FOR REVIEW
90% DESIGN - CLIENT REVIEW
REVISION

Honeywell
101 COLUMBIA RD. BOX 2245, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

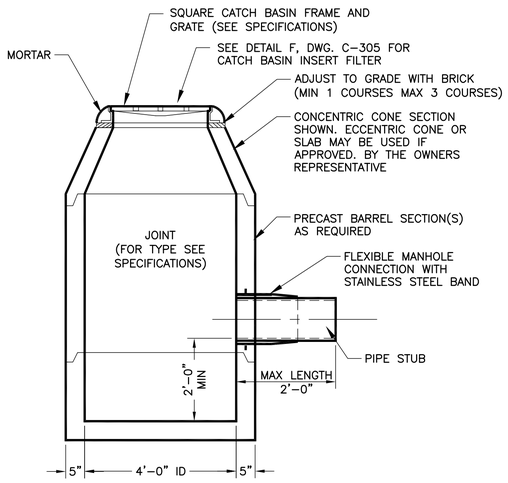
DRAWING STATUS
100% DESIGN

CIVIL
CROSS SECTIONS
STA 106+00 TO STA 108+00

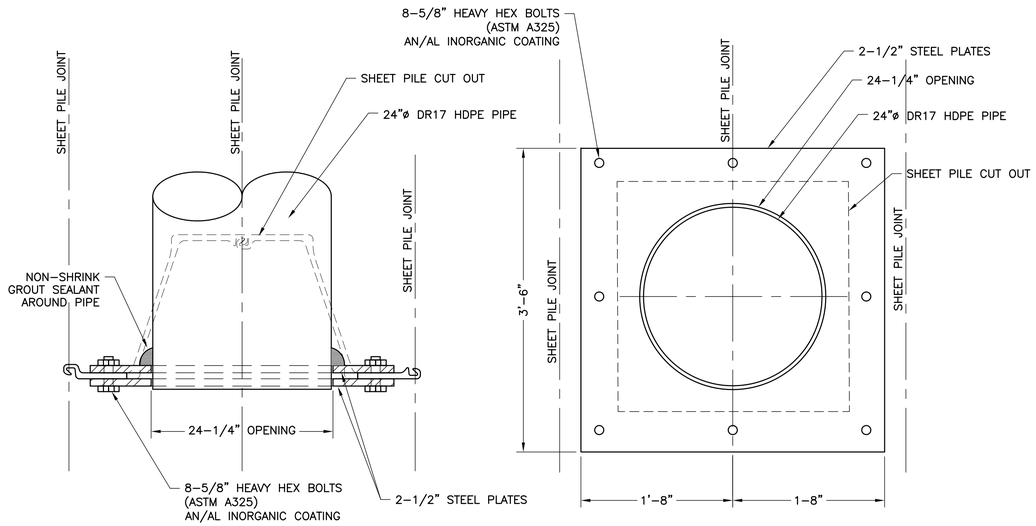
amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME, 04112
(207) 775 - 5401

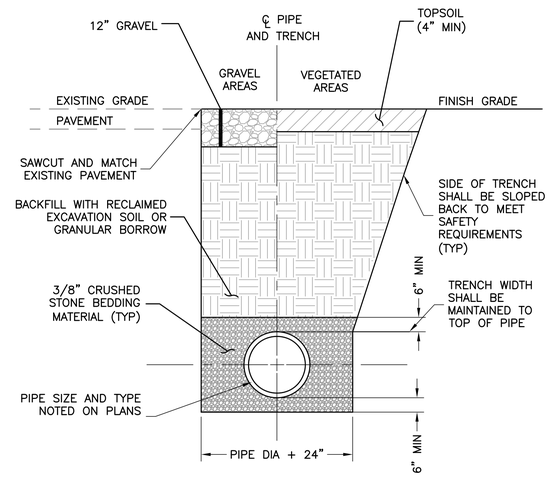
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

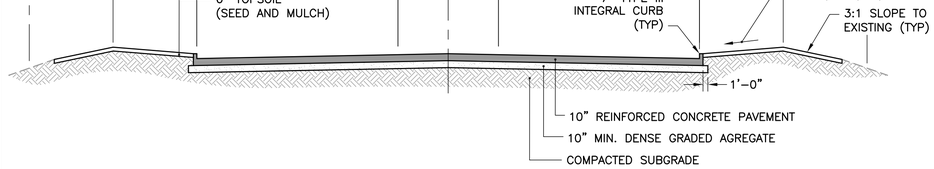
DATE	JUNE 2016
PROJ	3293-16-1667
DWG	C-403
SHEET	34 OF 53



PRECAST CONCRETE CATCHBASIN — O — TYP C-502
NTS

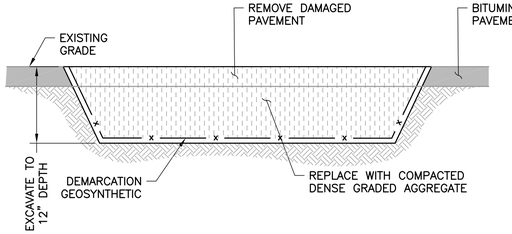




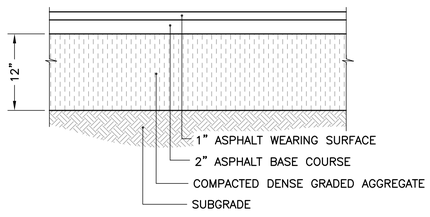


SPRINGWELLS COURT REPLACEMENT — R — TYP C-502
NTS

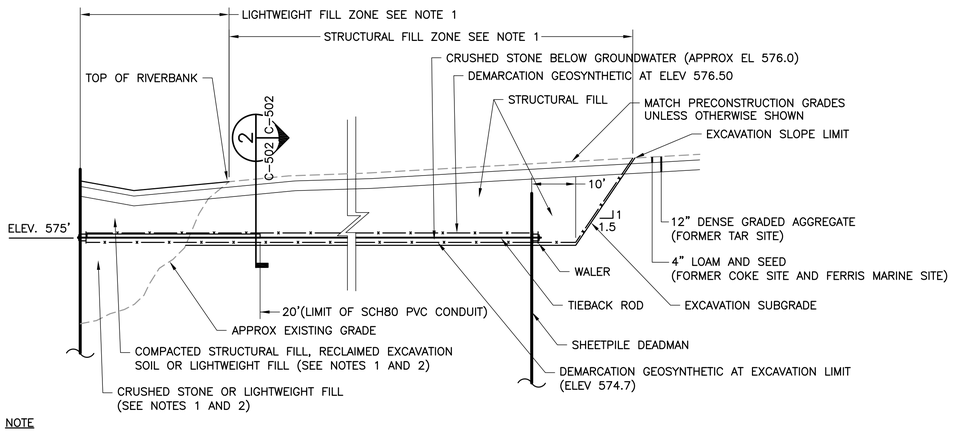
PIPE PENETRATION — P — TYP C-502
NTS



DAMAGED PAVEMENT MEASURES — S — TYP C-502
NTS



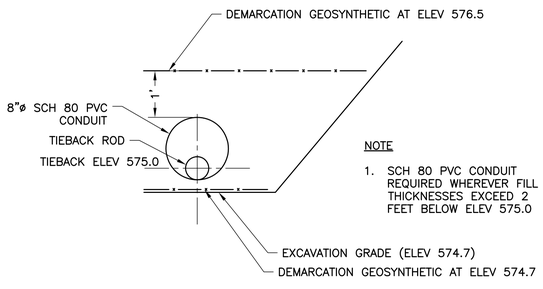
PAVEMENT REPLACEMENT — T — TYP C-502
NTS



NOTE

1. FILL REQUIRED BETWEEN SHEETPILE WALL AND ORIGINAL TOP OF RIVERBANK SLOPE IN EXCESS OF 2' THICKNESS SHALL BE ACHIEVED WITH LIGHTWEIGHT FILL (STA 100+00 TO 109+00, STA 114+00 TO 115+50, AND STA 123+50 TO 125+00). FILLS OF LESS THAN 2' THICKNESS ABOVE ELEV 575' CAN BE ACHIEVED WITH COMPACTED STRUCTURAL FILL OR RECLAIMED EXCAVATION SOIL. SEE CROSS SECTIONS (DWGS C401-C409) FOR ADDITIONAL INFORMATION.
2. FILL OR BACKFILL NOT COVERED BY NOTE 1 ABOVE ELEVATION 575 SHALL CONSIST OF COMPACTED STRUCTURAL FILL OR RECLAIMED EXCAVATION SOIL, AND CRUSHED STONE BELOW ELEVATION 575.

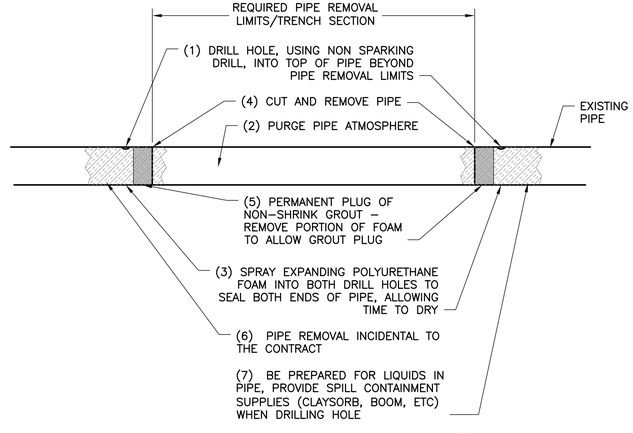
TYPICAL BACKFILL SECTION — 1 — TYP C-502
NTS



NOTE

1. SCH 80 PVC CONDUIT REQUIRED WHEREVER FILL THICKNESSES EXCEED 2 FEET BELOW ELEV 575.0

PVC TIEBACK CONDUIT SECTION — 2 — C-502 C-502
NTS



PIPE REMOVAL DETAIL — U — TYP C-502
NTS

Lyle N Tracy
MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

NO.	DATE	DSGN	DR	CHK	APVD
2	8/08/16	L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY
1	6/17/16				

REVISION: 100% DESIGN - FOR REVIEW (WJW LNT); 90% DESIGN - CLIENT REVIEW (JVM LNT BY APVD)

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

CIVIL
CIVIL DETAILS 2

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME 04112
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	AUG 2016
PROJ	3293-16-1667
DWG	C-502
SHEET	42 OF 53

FILE NAME: Z:\Projects\HONEYWELL\DETROIT\LRROC\Construction Plans\C-502_CIVIL DETAILS 2.dwg PLOT DATE: Wed, 10 Aug 2016 PLOT TIME: 3:06 PM

GENERAL STRUCTURAL NOTES

1. USE STRUCTURAL DRAWINGS (S–SERIES) IN CONJUNCTION WITH THE CIVIL DRAWING (C–SERIES) AND IN CONJUNCTION WITH THE NOTES ON DRAWING G–003.
2. REFER TO DRAWING G–003 FOR PROJECT SEQUENCING.
3. MAKE NO DEVIATIONS FROM THE DOCUMENTS WITHOUT WRITTEN DIRECTION FROM THE ENGINEER.
4. VERIFY ALL DIMENSIONS IN THE FIELD. NOTIFY THE ENGINEER OF DISCREPANCIES BETWEEN THE NOTES, DRAWINGS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH AFFECTED PORTIONS OF THE WORK.
5. COORDINATE ALL WORK WITH THE OWNER TO MINIMIZE DISRUPTION TO OPERATIONS, AND PROTECT EXISTING FACILITIES, STRUCTURES AND UTILITIES FROM DISRUPTION AND DAMAGE.
6. THE PERMANENT SHEETPILE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE ONLY AFTER THE STRUCTURAL WORK CONTAINED IN THE DRAWINGS IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE THE ERECTION PROCEDURES AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS. SUCH TEMPORARY MATERIAL SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER COMPLETION OF THE PROJECT.
7. SUBMIT COMPLETE SHOP DRAWINGS FOR ALL PARTS OF THE STRUCTURAL WORK, INCLUDING DESCRIPTIONS OF TEMPORARY SHORING, CONSTRUCTION METHODS AND SEQUENCING, WHERE APPLICABLE. NO PERFORMANCE OF THE WORK SHALL COMMENCE WITHOUT REVIEW OF THE SHOP DRAWINGS BY THE ENGINEER.
8. ADHERE TO ALL APPLICABLE FEDERAL, STATE, AND MUNICIPAL LAWS, RULES, REGULATIONS AND ORDINANCES.
9. ALL HOLES IN BEARING PLATES SHALL BE DRILLED AND FABRICATED OFF–SITE.
10. ALL HOLES IN SHEETING SHALL BE EITHER DRILLED OR TORCH CUT ON SITE.
11. ALL HOLES SHALL PROVIDE $\frac{1}{2}$ INCH CLEARANCE ON ALL SIDES FOR BOLT CONNECTIONS UNLESS OTHERWISE NOTED ON THE DRAWINGS.

DESIGN LOADS AND LOAD RESTRICTIONS

1. DEAD LOADS: PER BASIS OF DESIGN REPORT.
2. EARTH PRESSURE COEFFICIENTS: PER BASIS OF DESIGN REPORT.
3. SURCHARGE LOADS:
   A. STATION 115+38 TO 119+74: 850 PSF, 30 FEET BY 55 FEET IN PLAN APPLIED 5 FEET BEHIND THE SHEETPILE WALL (REPRESENTS SURCHARGE IMPOSED 100–TON CRANE AND POTENTIAL SOIL STOCKPILES).
   B. NO SURCHARGE LOAD ALONG REMAINDER OF ALIGNMENT.
4. LIVE LOADS:
   A. SEISMIC LOADING: PEAK GROUND ACCELERATION (PGA) ASSOCIATED WITH A PROBABILITY OF EXCEEDING (PE) 2% IN 50 YEARS OF 0.06G BASED ON UNITED STATES GEOLOGICAL SURVEY'S (USGS) 2014 SEISMIC HAZARDS MAPPING DATA.
5. ROUGE RIVER DATA: ELEVATION 574 FT UPLAND OF SHEETPILE WALL (FORMER TAR) AND ELEVATION 575 FT (FORMER COKE AND FERRISS MARINE), ELEVATION 572 FT ON RIVER SIDE OF SHEETPILE WALL.
6. DURING CONSTRUCTION OF THE PERMANENT SHEETPILE WALL, ANY EQUIPMENT LOADING EXCEEDING THAT DEVELOPED BY A 50 TON CRANE OR LARGER SHALL NOT ENCROACH CLOSER THAN 50 FEET OF THE PERMANENT SHEETPILE WALL LOCATION UNTIL THE TIE–BACKS ARE INSTALLED AND PRE–TENSIONED.
7. FOUR LOCATIONS SHALL BE SLOT DREDGED AND BACKFILLED AS SHOWN ON DRAWINGS C–201, C–202, AND C–203. DREDGING DETAILS ARE PROVIDED LRROC AREA OF CONCERN DESIGN DRAWING DATED AUGUST 2016, AND IS NOT IN THIS CONTRACT.

MATERIALS

1. SHEETPILE WALL STEEL SHEETING:
   A. AZ–50, ASTM A572–65 (65 KSI) STEEL, FORMER COKE SITE, FORMER TAR SITE, AND FERRISS MARINE.
   B. AZ–32–750, ASTM A572–50 (50 KSI) STEEL, FERRISS MARINE SITE.
2. DEADMAN WALL STEEL SHEETING:
   A. AZ–20–700, ASTM A572–50 (50 KSI) STEEL, FORMER COKE SITE AND EASTERN HALF OF FORMER TAR SITE.
   B. AZ–38–700N, ASTM A572–50 (50 KSI) STEEL, WESTERN HALF OF FORMER TAR SITE AND WESTERN–MOST DEADMAN FERRISS MARINE.
   C. AZ–28–700, ASTM A572–50 (50 KSI) STEEL, FERRISS MARINE SITE.
3. TIE–BACKS: 1–3/4 INCH, 2–1/4 INCH, AND 2–1/2 INCH DIAMETER ALL–THREAD BAR, ASTM A722 (150 KSI) STEEL.
4. WALERS: W14X48, ASTM A992 (50 KSI) STEEL AND W24X117 ASTM A992 (SOKSI) STEEL.
5. WALER–SHEETPILE AND WALER–DEADMAN WALL BOLTS: 1–1/4 INCH DIAMETER ASTM A722 (150 KSI) STEEL.
6. CAST–IN–PLACE CONCRETE: F'C = 4,000 PSI.
7. REINFORCING STEEL FOR CONCRETE: ASTM A615–60 (60 KSI) STEEL.
8. STRUCTURAL STEEL:
   A. BEARING PLATES: ASTM A572–50 (50 KSI) STEEL.
   B. TIE AND SHIM PLATES: ASTM A572–50 (50 KSI) STEEL.
9. H–PILES:
   A. HP16X183: ASTM 572 GR50 (50KSI) STEEL
10. TIE–BACK CONDUIT: ASTM D1785, SCHEDULE 80 PVC.

BASIS OF DESIGN REPORT REFERENCE:

1. THE PERMANENT SHEETPILE WALL DESIGN PARAMETERS ARE BASED ON DESIGN EVALUATION RESULTS PRESENTED IN THE REPORT ENTITLED "BASIS OF DESIGN REPORT, LOWER ROUGE RIVER – OLD CHANNEL, PREPARED FOR U.S. ENVIRONMENTAL PROTECTION AGENCY'S GREAT LAKES NATIONAL PROGRAM OFFICE AND HONEYWELL INTERNATIONAL, INC., DATED AUGUST 2016.

Lyle N Tracy

MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

NO.	DATE	DR	CHK	APVD	BY
2	8/08/16	100% DESIGN - FOR REVIEW			JVM
1	6/17/16	90% DESIGN - CLIENT REVIEW			JVM
DSGN	L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY	

APVD LNT LNT L. TRACY

Honeywell
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LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

STRUCTURAL

STRUCTURAL NOTES

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME, 04112
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	S-001
SHEET	43 OF 53

TIEBACK BAR SCHEDULE

TIEBACK BAR DESIGNATION	DIAMETER (INCHES)	LENGTH (FEET)	COMENTS
A1	2–1/4	114	SINGLE BAR
A2	2–1/4	124	SINGLE BAR
A3	2–1/4	112	SINGLE BAR
A4	2–1/4	105	SINGLE BAR
A5	2–1/4	124	SINGLE BAR
A6	2–1/4	120	SINGLE BAR
A7	2–1/4	95	SINGLE BAR
A8	2–1/4	86	SINGLE BAR
A9	2–1/4	140	SINGLE BAR
A10	2–1/4	110	SINGLE BAR
A11	2–1/4	114	SINGLE BAR
A12	2–1/4	60	SINGLE BAR
A13	2–1/4	55	SINGLE BAR
A14	2–1/4	70	SINGLE BAR
A15	2–1/4	70	SINGLE BAR
A16	2–1/4	70	SINGLE BAR
B1	2–1/4	114	DOUBLE BAR
B2	2–1/4	124	DOUBLE BAR
C1	2–1/2	114	SINGLE BAR
C2	2–1/2	140	SINGLE BAR
C3	2–1/2	65	SINGLE BAR
D1	1–3/4	124	SINGLE BAR
D2	1–3/4	122	SINGLE BAR
D3	1–3/4	120	SINGLE BAR

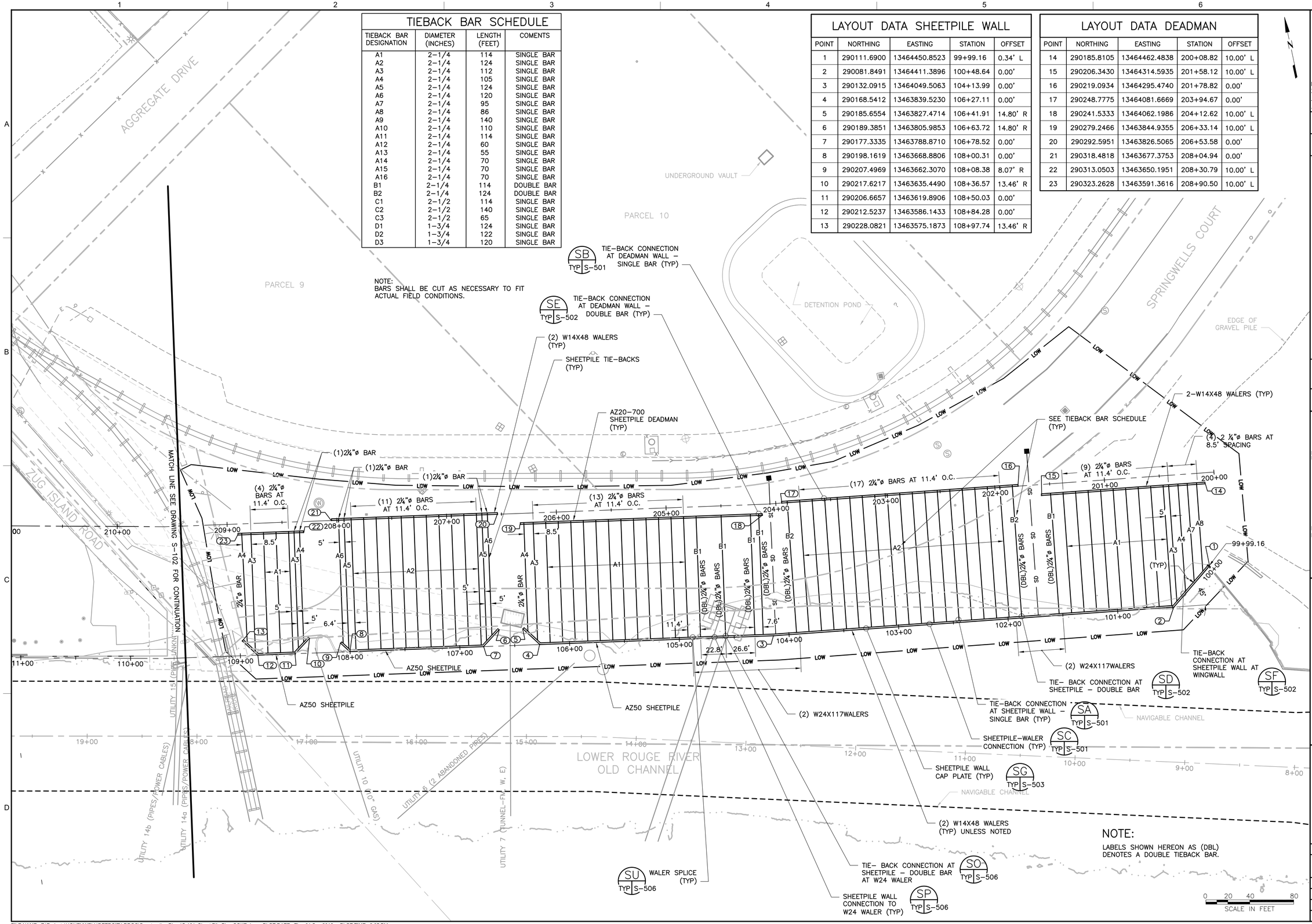
NOTE:
BARS SHALL BE CUT AS NECESSARY TO FIT ACTUAL FIELD CONDITIONS.

LAYOUT DATA SHEETPILE WALL

POINT	NORTHING	EASTING	STATION	OFFSET
1	290111.6900	13464450.8523	99+99.16	0.34' L
2	290081.8491	13464411.3896	100+48.64	0.00'
3	290132.0915	13464049.5063	104+13.99	0.00'
4	290168.5412	13463839.5230	106+27.11	0.00'
5	290185.6554	13463827.4714	106+41.91	14.80' R
6	290189.3851	13463805.9853	106+63.72	14.80' R
7	290177.3335	13463788.8710	106+78.52	0.00'
8	290198.1619	13463668.8806	108+00.31	0.00'
9	290207.4969	13463662.3070	108+08.38	8.07' R
10	290217.6217	13463635.4490	108+36.57	13.46' R
11	290206.6657	13463619.8906	108+50.03	0.00'
12	290212.5237	13463586.1433	108+84.28	0.00'
13	290228.0821	13463575.1873	108+97.74	13.46' R

LAYOUT DATA DEADMAN

POINT	NORTHING	EASTING	STATION	OFFSET
14	290185.8105	13464462.4838	200+08.82	10.00' L
15	290206.3430	13464314.5935	201+58.12	10.00' L
16	290219.0934	13464295.4740	201+78.82	0.00'
17	290248.7775	13464081.6669	203+94.67	0.00'
18	290241.5333	13464062.1986	204+12.62	10.00' L
19	290279.2466	13463844.9355	206+33.14	10.00' L
20	290292.5951	13463826.5065	206+53.58	0.00'
21	290318.4818	13463677.3753	208+04.94	0.00'
22	290313.0503	13463650.1951	208+30.79	10.00' L
23	290323.2628	13463591.3616	208+90.50	10.00' L



NO.	DATE	DSGN	DR	CHK	APVD
2	8/05/16	L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY
1	6/17/16				

REVISION

100% DESIGN - FOR REVIEW
90% DESIGN - CLIENT REVIEW

BY	APVD
WJW	LNT
JVM	LNT

Lyle N Tracy
MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

Honeywell
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LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHEETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

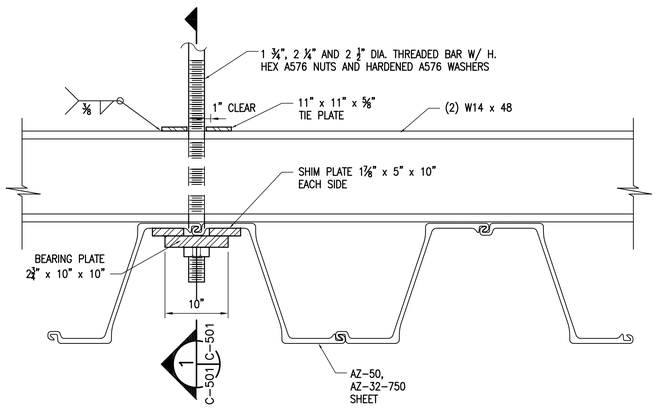
STRUCTURAL

PERMANENT SHEET PILE WALL AND ANCHOR SYSTEM PLAN (COKE)

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME, 04112
(207) 775 - 5401

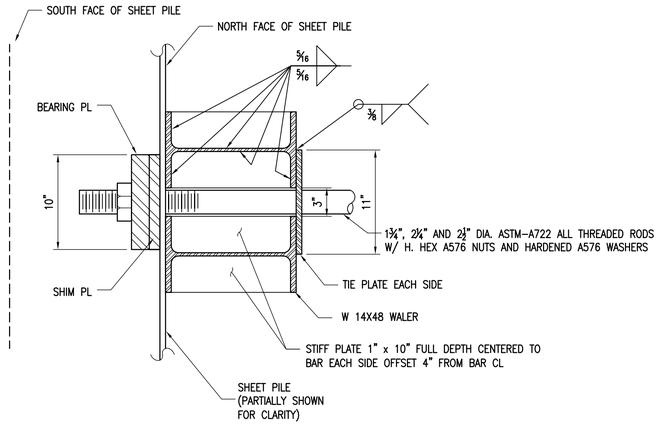
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	S-101
SHEET	44 OF 53



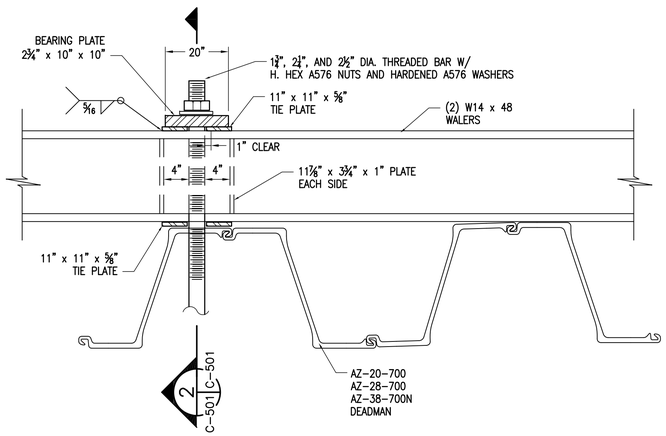
TIE-BACK CONNECTION AT SHEETPILE WALL - SINGLE BAR (SA)

SCALE: 1" = 1'-0" — TYP S-501



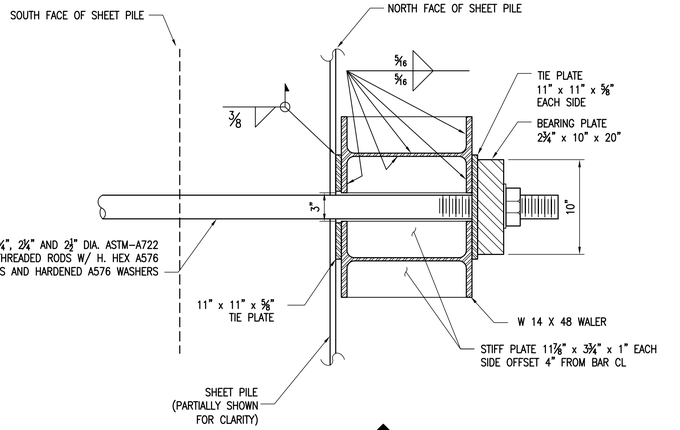
SECTION

SCALE: 1 1/2" = 1'-0" — TYP S-501



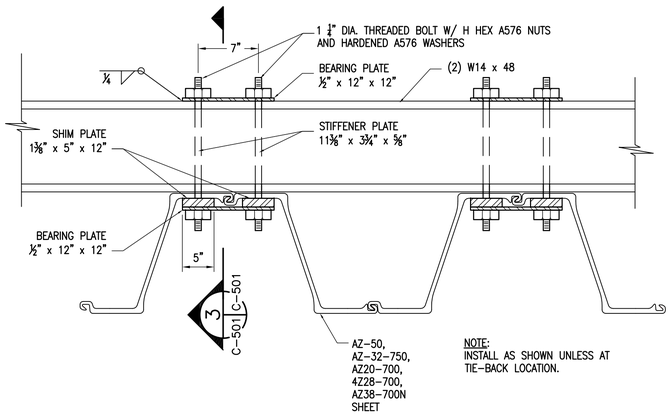
TIE-BACK CONNECTION AT DEADMAN WALL - SINGLE BAR (SB)

SCALE: 1" = 1'-0" — TYP S-501



SECTION

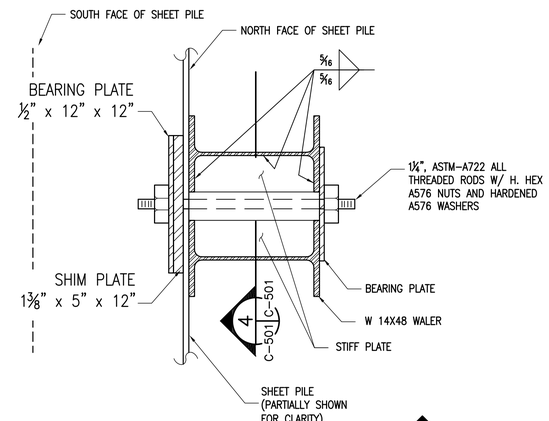
SCALE: 1 1/2" = 1'-0" — TYP S-501



NOTE: INSTALL AS SHOWN UNLESS AT TIE-BACK LOCATION.

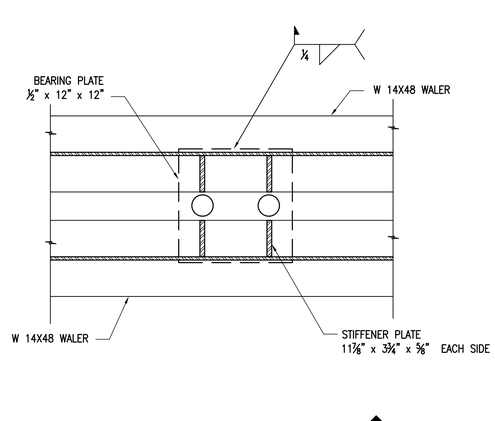
SHEETPILE/DEADMAN WALL-WALER CONNECTION

SCALE: 1" = 1'-0" — TYP S-501



SECTION

SCALE: 1 1/2" = 1'-0" — TYP S-501



SECTION

SCALE: 1 1/2" = 1'-0" — TYP S-501

NOTES:

1. DRILL HOLE DIAMETERS ARE AS FOLLOWS FOR:
   - 1¾"ø TIEBACK = 1⅞"ø HOLE
   - 2 ¼"ø TIEBACK = 2⅜"ø HOLE
   - 2 ½"ø TIEBACK = 2⅝"ø HOLE

Lyle N Tracy — MI PROFESSIONAL ENGINEER LICENSE NUMBER Lic_NUM

NO.	DATE	DSGN	DR	CHK	APVD	BY
2	8/08/16	100% DESIGN - FOR REVIEW	WJW	LNT	L. TRACY	L. TRACY
1	6/17/16	90% DESIGN - CLIENT REVIEW	JVM	LNT		
		REVISION	J. McKENZIE	L. STIRBAN		

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

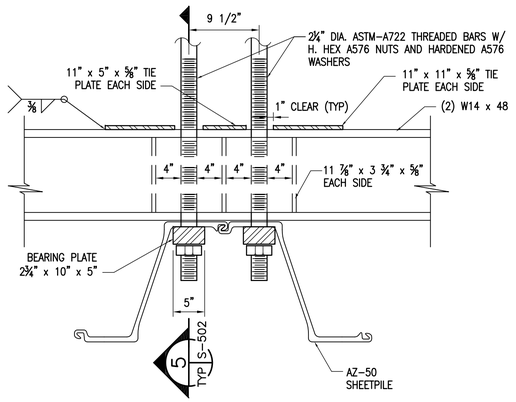
STRUCTURAL

STRUCTURAL DETAILS 1

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street Suite 200
Portland, ME, 04112
(207) 775 - 5401

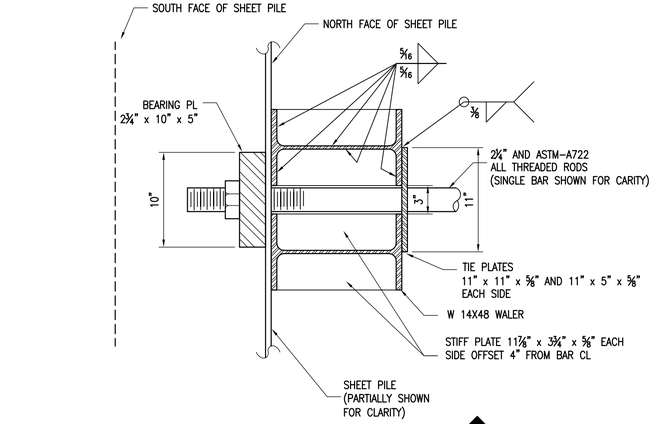
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	S-501
SHEET	47 OF 53



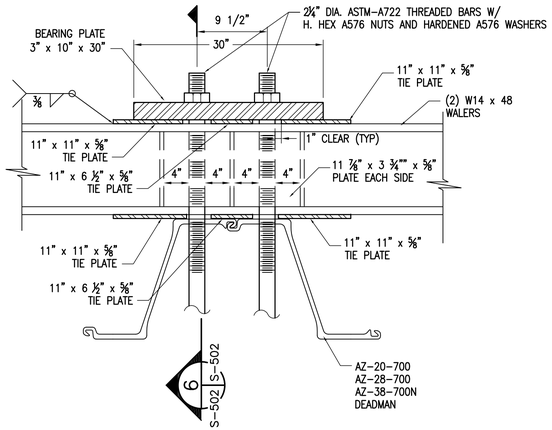
TIEBACK CONNECTION AT SHEETPILE – DOUBLE BAR

SCALE: 1" = 1'-0" — SD TYP S-502



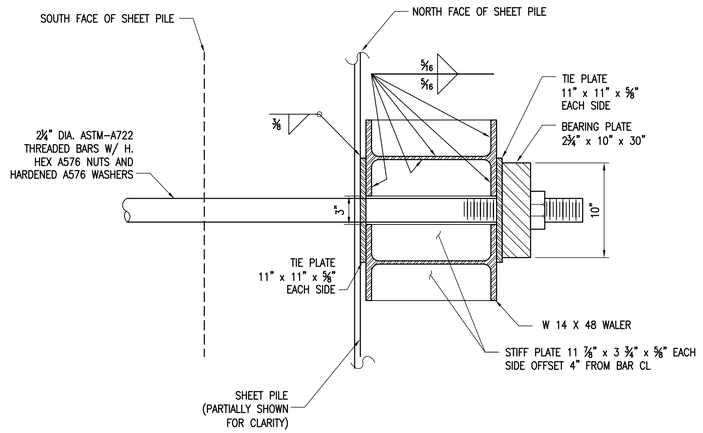
SECTION

SCALE: 1 1/2" = 1'-0" — 5 TYP S-502



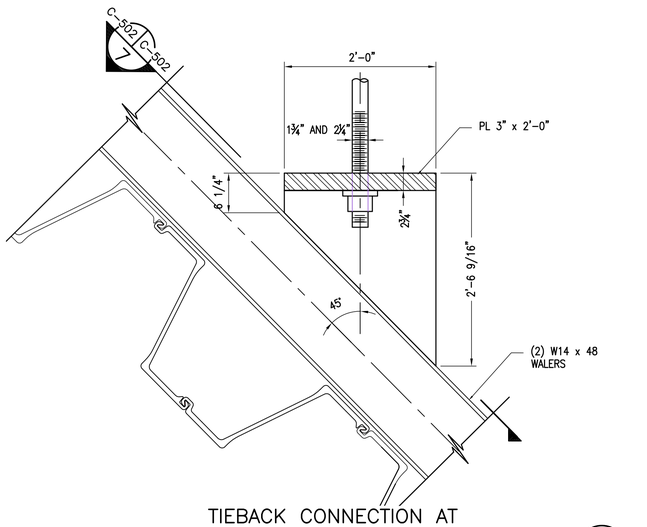
TIEBACK CONNECTION AT DEADMAN WALL – DOUBLE BAR

SCALE: 1" = 1'-0" — SE TYP S-502



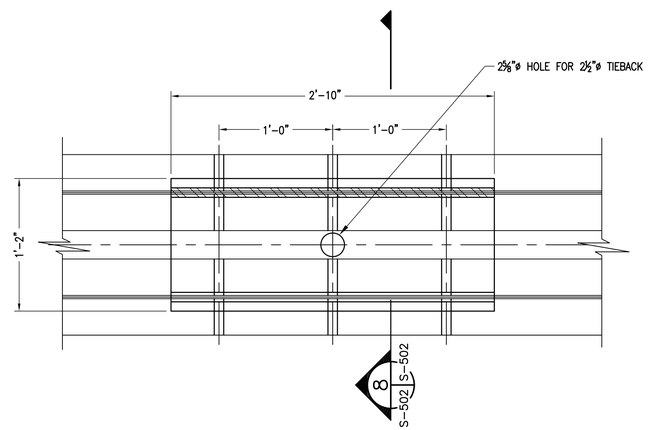
SECTION

SCALE: 1 1/2" = 1'-0" — 6 TYP S-502



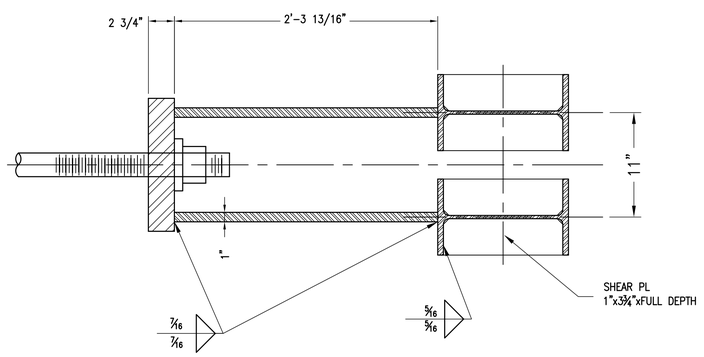
TIEBACK CONNECTION AT SHEETPILE WALL ON WINGWALL

SCALE: 1" = 1'-0" — SF TYP S-502



SECTION

SCALE: 1 1/2" = 1'-0" — 7 TYP S-502



SECTION

SCALE: 1 1/2" = 1'-0" — 8 TYP S-502

Lyle N Tracy

MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

NO.	DATE	DSGN	DR	CHK	APVD	BY
		L. TRACY	J. McKENZIE	L. STIRBAN	L. TRACY	
2	8/08/16		100% DESIGN - FOR REVIEW			WJW
1	6/17/16		90% DESIGN - CLIENT REVIEW			JVM
			REVISION			BY

APVD
LNT
LNT
APVD

Honeywell
101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

LOWER ROUGE RIVER OLD CHANNEL
ROUGE RIVER AREA OF CONCERN
PERMANENT SHETPILE WALL INSTALLATION
DETROIT, MICHIGAN
HONEYWELL SITE ID - 35057

DRAWING STATUS
100% DESIGN

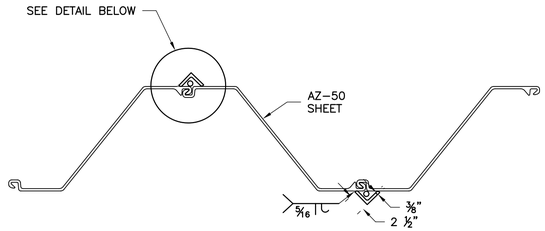
STRUCTURAL

STRUCTURAL DETAILS 2

amec foster wheeler
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME. 04112
(207) 775 - 5401

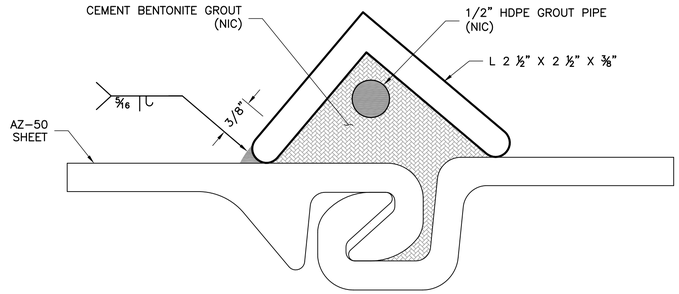
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	3293-16-1667
DWG	S-502
SHEET	48 OF 53

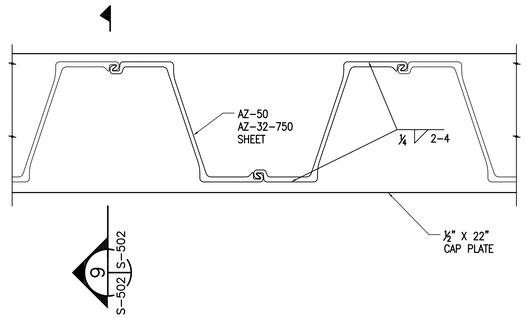


NOTES:

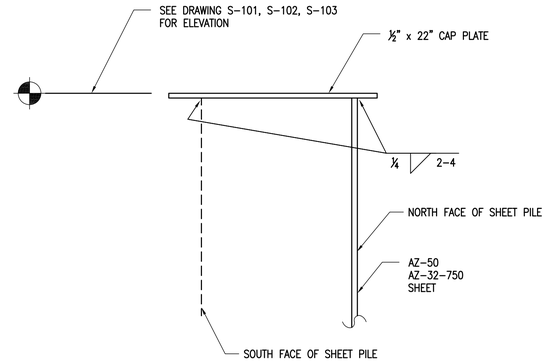
1. TOP 2 ½" x 2 ½" x ⅜" ANGLE = ELEV. 574.0'.
2. BOTTOM 2 ½" x 2 ½" x ⅜" ANGLE:
   - STA 99+99.16 TO STA 115+12.34 = ELEV. 545.0'
   - STA 115+53.26 TO STA 119+73.93 = ELEV. 540.0'
3. APPLY AT FORMER DETROIT COKE AND TAR SITES ONLY.



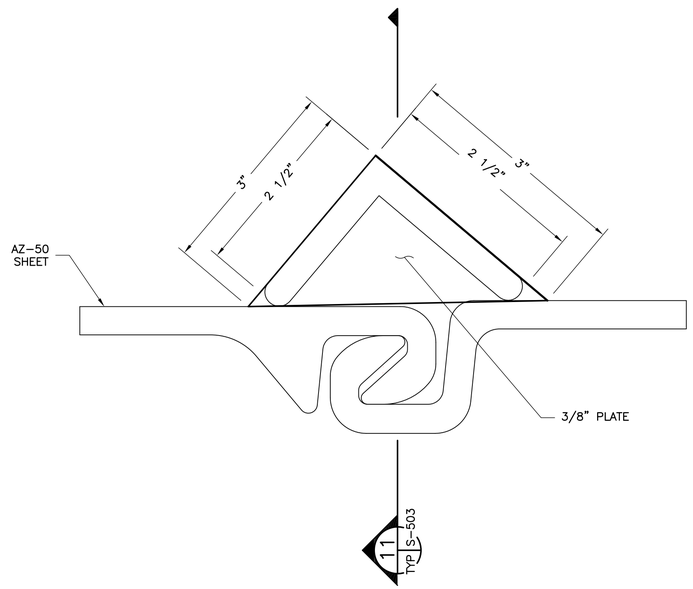
SHEETPILE WALL SEALING DETAIL (SH)
N.T.S.
TYP S-503



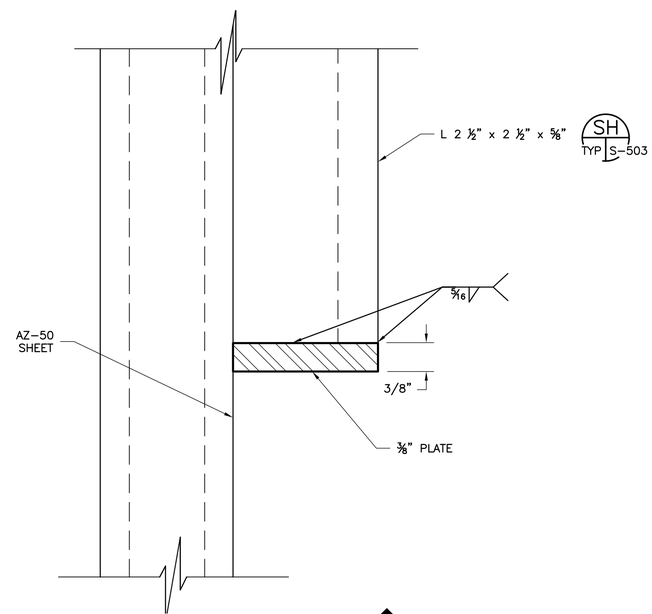
SHEETPILE WALL CAP PLATE (SG)
SCALE: 1" = 1'-0"
TYP S-503



SECTION (10)
SCALE: 1 1/2" = 1'-0"
TYP S-503



SHEET SEALING BOTTOM DETAIL (SI)
N.T.S.
TYP S-503



SHEET SEALING – SECTION (12)
N.T.S.
TYP S-503

Lyle N Tracy

MI PROFESSIONAL ENGINEER
LICENSE NUMBER Lic_NUM

NO.	DATE	DSGN	DR	CHK	APVD	BY
2	8/08/16				L. TRACY	L. TRACY
1	6/17/16	L. TRACY	J. McKENZIE	L. STIRBAN	APVD	JVM
			REVISION			
			100% DESIGN - FOR REVIEW			WJW
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STRUCTURAL DETAILS 3

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DATE	JUNE 2016
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DWG	S-503
SHEET	49 OF 53

FILE NAME: Z:\Projects\HONEYWELL\DETROIT\LRROC\Construction Plans\S-503_Structural Details 3.dwg PLOT DATE: Fri, 05 Aug 2016 PLOT TIME: 1:26 PM