

BENCH MARKS (NAVD 1988)

Basis Vertical Datum

The Vertical Datum is based on the elevation established by the National Geodetic Survey, monument H 29 Reset, being 932.63 feet in elevation, and monument A 308, being 934.63 feet in elevation. The said monuments being source bench marks with elevations that are based on the North American Vertical Datum of 1988.

- B.M. #4 Top of north flange bolt of a fire hydrant located on the south side of US Route 36 and the second hydrant east of the entrance drive into the "Catus Hollow" camp grounds approximately 1500 feet east of Kilbourne Road. Elev. = 939.85
- B.M. #5 Top of magnail set in top of wooden guard rail post, located on the north side of State Route 36/37 at the west end of a guard rail opposite the driveway to residence 1388. Elev. = 940.29
- B.M. #6 Top of a railroad spike set in the south side of a wooden A.E.P. transformer pole, located 25 feet north of State Route 36/37 at residence 1555. Elev. = 939.26
- B.M. #7 Top of west flange bolt of a fire hydrant, located on the east side of Glenn Road the first hydrant south of State Route 36/37. Elev. = 942.58
- B.M. #8 Top of the west flange bolt of a fire hydrant located on the east side of Glenn Road, the second hydrant south of State Route 36/37. Elev. = 943.35
- B.M. #10 Chiseled "X" on the south flange bolt of the first fire hydrant located on the east side of Glenn Road on the north side of proposed Nutter Farm Lane. Elev. = 944.64
- B.M. #11 Railroad spike set in the east side of a 26 inch oak tree, 60 feet west of the centerline of Glenn Road, 800 feet north of the railroad tracks. Elev. = 943.33
- B.M. #12 Railroad spike set in the west side of a utility pole on the east side of Glenn Road, first utility pole south of the railroad tracks. Elev. = 945.48

HORIZONTAL CONTROL

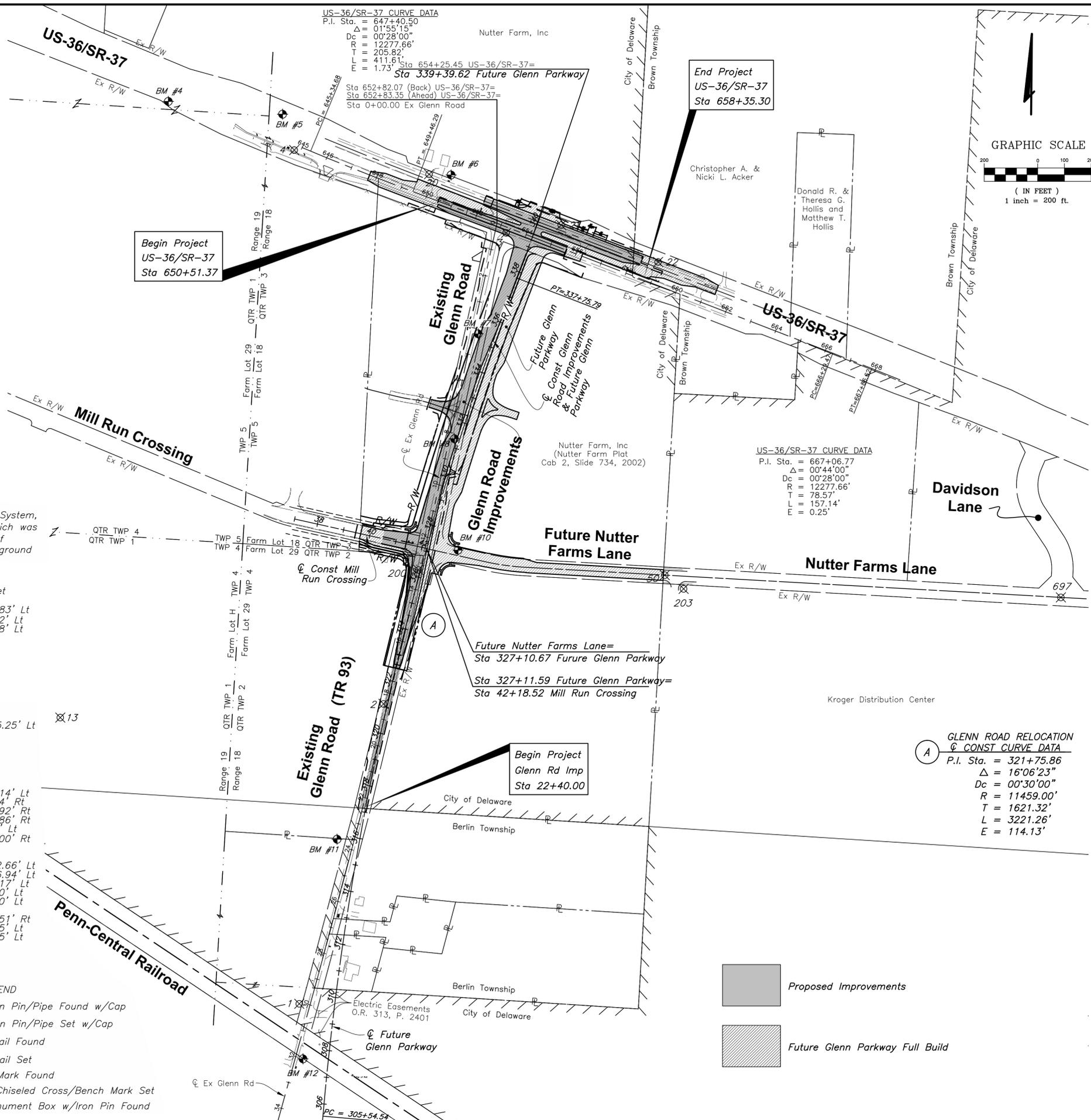
Basis Horizontal Control

The coordinates shown on this map are based on the Ohio State Plane Coordinate System, North Zone, NAD 83 (CORS96). Said coordinates originated from a field traverse which was tied (referenced) to said coordinate system by GPS observations and observations of selected CORS base stations in the National Spatial Reference System. The grid to ground scale factor (1.0000063578) was applied at the location of point number 18.

Points	Northing	Easting	Raw Description	Station	Offset
1	225346.2104	1820420.2411	IPFw/cap	309+60.08	131.83' Lt
2	226465.3092	1820735.3553	IPFw/cap	321+09.87	13.52' Lt
3	228223.1144	1821193.8296	MAGF	339+18.78	97.48' Lt
4	228532.2172	1820401.4185	MAGF		
5	229069.5465	1819105.9428	MAGF		
6	229488.6041	1818099.6294	MAGS		
7	229141.5624	1818124.8788	IPSw/cap		
8	228787.2260	1817937.4052	IPSw/cap		
9	228688.2733	1817812.4096	IPSw/cap		
10	228281.5821	1817989.1709	IPSw/cap		
11	227351.3651	1817645.3580	IPSw/cap	318+22.62	1185.25' Lt
12	226697.0169	1818374.4386	IPSw/cap		
13	226414.2831	1819526.4384	IPSw/cap		
14	224368.4324	1820223.8545	IPSw/cap		
15	223852.7406	1820016.6041	MAGS		
16	221804.3375	1820080.3820	IPSw/cap	340+19.06	445.14' Lt
17	222924.9601	1821742.6331	IPSw/cap	340+20.08	84.34' Rt
18	222815.8300	1823043.6920	IPSw/cap	340+22.07	471.92' Rt
19	224714.9127	1821140.6786	IPSw/cap	328+69.96	882.66' Rt
20	228441.8120	1820905.5760	MAGS	326+25.88	8.47' Lt
21	228252.1751	1821399.9328	MAGS	328+38.38	965.00' Rt
22	228114.5179	1821762.2452	MAGS		
50	226945.7566	1821787.1795	MAGS	339+21.76	1452.66' Lt
200	226965.0797	1820865.7064	MAGS	340+30.94	1036.94' Lt
203	226894.5961	1821857.7056	IPSw/cap	340+46.20	367.17' Lt
402	229285.9034	1818548.2071	BMF	335+30.89	61.70' Lt
403	228976.8760	1819301.5303	BMF	331+33.13	19.20' Lt
404	228713.6944	1819930.5627	BMF	327+37.45	114.51' Rt
405	228665.9155	1820357.7128	BMF	315+82.60	83.55' Lt
406	228439.0690	1820988.0900	BMF	307+59.60	94.75' Lt
407	227846.1826	1821089.5818	BMF		
408	227454.7578	1821000.6419	BMF		
409	229428.7621	1818566.5784	BMF		
410	227038.8992	1821014.0570	CHISX BMS		
411	225960.2823	1820561.6390	BMS		
412	225140.8555	1820434.0960	BMS		
697	226862.7438	1823268.6356	MBFw/ip		

MONUMENT LEGEND

- IPFw/cap = Iron Pin/Pipe Found w/Cap
- IPSw/cap = Iron Pin/Pipe Set w/Cap
- MAGF = Mag Nail Found
- MAGS = Mag Nail Set
- BMF = Bench Mark Found
- CHISX BMS = Chiseled Cross/Bench Mark Set
- MBFw/ip = Monument Box w/Iron Pin Found



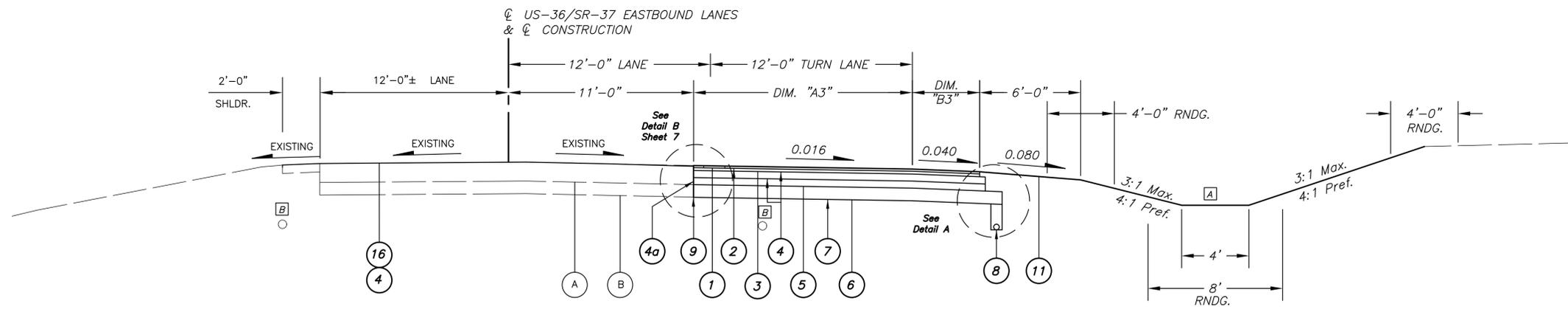
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Date	February 2015
Scale	Horiz : 1" = 200'
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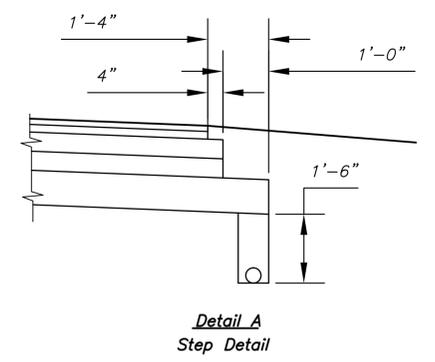
CITY OF DELAWARE, DELAWARE COUNTY, OHIO STREET IMPROVEMENT PLAN FOR GLENN ROAD / US-36 TO MILL RUN CROSSING IMPROVEMENTS	SCHEMATIC PLAN
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MARK	DATE	DESCRIPTION

EMHT
 Engineers, Architects, Planners & Surveyors, Inc.
 5500 New Albany Road, Columbus, OH 43224
 Phone: (614) 752-5500 Fax: (614) 752-5501

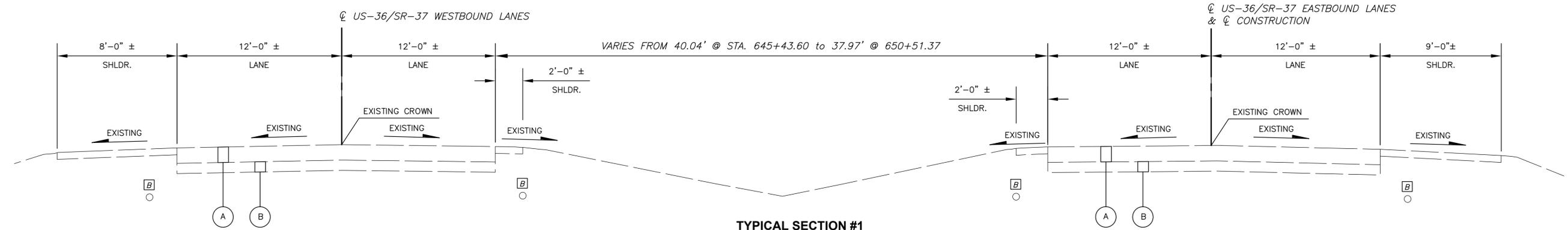


TYPICAL SECTION #3
US-36/SR-37 EASTBOUND LANES
RESURFACING & WIDENING
 From Sta. 650+51.37 to Sta. 651+07.21

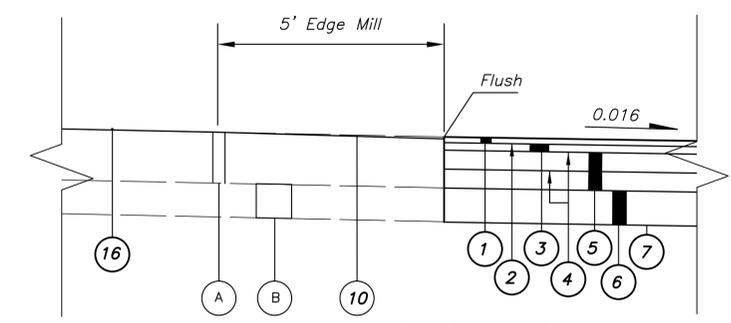


DIM. "A3"
 From 1'-0" @ 650+51.37 to 13'-0" @ 651+01.37
 From 13'-0" @ 651+01.37 to 13'-0" @ 651+07.21
 DIM. "B3"
 From 9'-0" @ 650+51.37 to 4'-0" @ 651+01.37
 From 4'-0" @ 651+01.37 to 4'-0" @ 651+07.21

TYPICAL SECTION #2
(NOT USED)



TYPICAL SECTION #1
US-36/SR-37 EX. LANES



DETAIL C
 Item 254, Pavement Planing,
 (Variable Depth Edge Mill T = 1/2" Max)

LEGEND (ODOT SPECIFICATIONS UNLESS OTHERWISE NOTED)

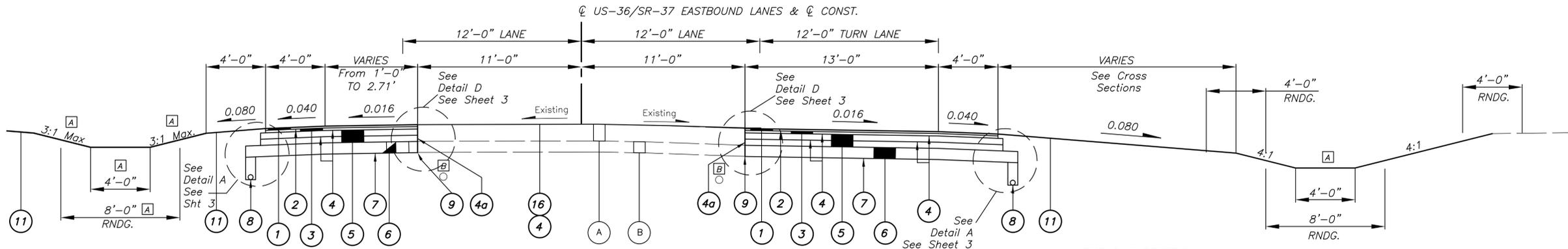
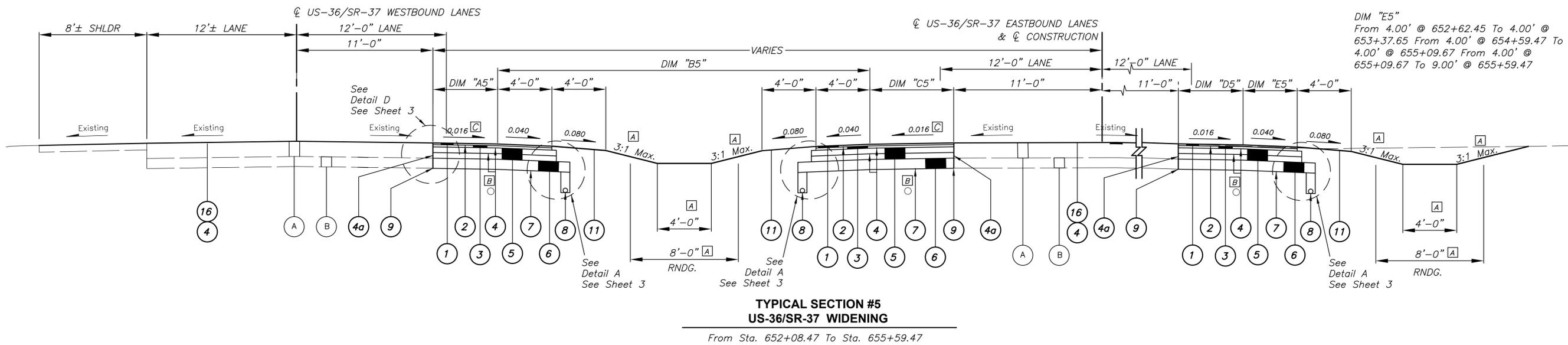
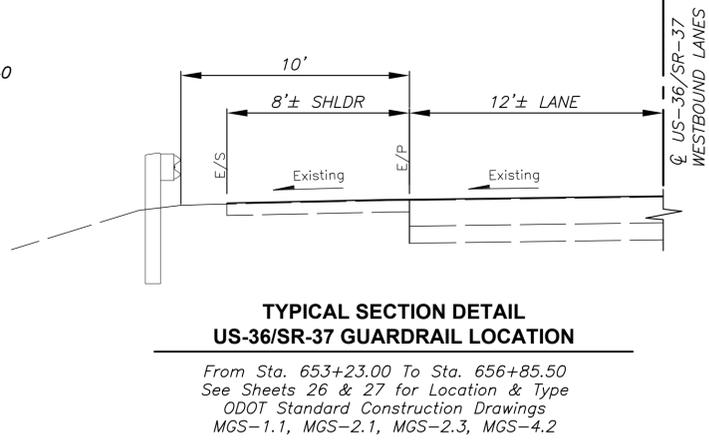
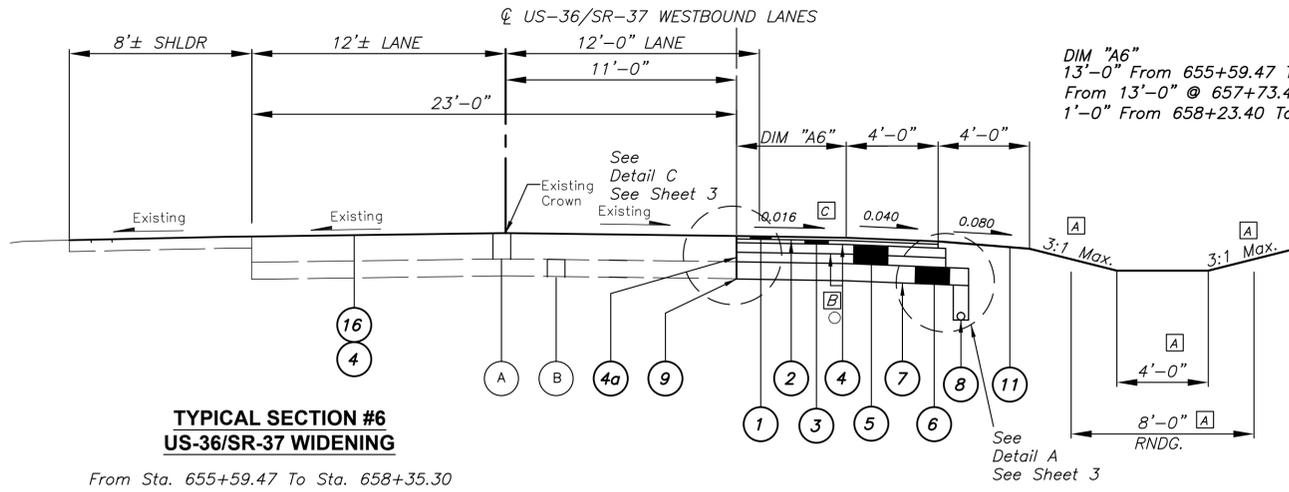
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|--|---|---|----------------------------|--|
| ① Item 441, 1-1/2" Asphalt Concrete Surface Course, Type 1, (448), PG70-22M | ⑥ Item 304, 9" Aggregate Base | ⑫ Item 254, 1-1/2" Pavement Planing, Asphalt Concrete | Ⓐ 11"± Asphalt Pavement | Ⓐ Except As Shown on Plan Cross Sections |
| ② Item 407, Tack Coat For Intermediate Course (0.040 Gal/Sq Yd) | ⑥a Item 304, 6" Aggregate Base | ⑬ Item 407, Tack Coat (0.100 Gal/SQ. YD) | Ⓑ 9"± Aggregate Base | Ⓑ Ex. 6" Underdrain to Remain |
| ③ Item 441, 2" Asphalt Concrete Intermediate Course, Type 2, (448), PG70-22M | ⑦ Item 204, Subgrade Compaction | ⑭ Item 653, Topsoil Furnished & Placed | Ⓒ 3-1/2"± Asphalt Pavement | Ⓒ Except in Transition Sections |
| ④ Item 407, Tack Coat (0.075 Gal/Sq Yd) | ⑧ Item 605, 4" Base Pipe Underdrain | ⑮ Item 441, Variable Thickness, Asphalt Concrete Intermediate Course, Type 2, 448 PG70-22M, For Use As Directed By The Engineer | Ⓓ 8-1/2"± Aggregate Base | |
| ④a Item 407, Tack Coat (0.250 Gal/Sq Yd) | ⑨ Item 255, Full Depth Pavement Sawing | ⑯ Item 421, Microsurfacing, Surface Course (Two Courses, T = 1/2" ±) | | |
| ⑤ Item 301, 10" Asphalt Concrete Base, PG64-22 (Place in two 5" Lifts) | ⑩ Item 254, Variable Pavement Planing, Asphalt Concrete | ⑰ Item 1510, Stress Absorbing Membrane Interlayer, Type 1 | | |
| ⑤a Item 301, 7" Asphalt Concrete Base, PG64-22 (Place in two 3-1/2" Lifts) | ⑪ Item 659, Seeding & Mulching, Class I | ⑱ Item 617, Compacted Aggregate | | |

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 1" = 40'-0"

Job No.	20080386	Date	February 2015	Sheet	3 / 74
Scale	None	CITY OF DELAWARE, DELAWARE COUNTY, OHIO STREET IMPROVEMENT PLAN FOR GLENN ROAD / US-36 TO MILL RUN CROSSING IMPROVEMENTS			
MARK	DATE	DESCRIPTION			
REVISIONS					



MARK	DATE	DESCRIPTION



DIM "A5"
From 1.0' @ 652+08.47 To 11.0' @ 653+63.34 From 11.0' @ 653+63.34 To 20.39' @ 653+71.83 From 20.39' @ 653+71.83 To 25.46' @ 654+46.96 From 25.46' @ 654+46.96 To 13.00' @ 654+59.45 From 13.00' @ 654+29.45 To 13.00' @ 655+59.47

DIM "B5"
From 33.01' @ 652+62.45 To 0.00' @ 653+71.83 From 0.00' @ 653+71.83 To 0.00' @ 654+46.96 From 0.00' @ 654+46.96 To 24.99' @ 654+59.45 From 24.99' @ 654+59.45 To 25.22' @ 659+59.47

DIM "C5"
From 2.71' @ 652+08.47 To 8.99' @ 653.62.85 From 8.99' @ 653+62.85 To 18.40' @ 653+71.83 From 18.40' @ 653+71.83 To 13.49' @ 654+46.96 From 13.49' @ 654+46.96 To 1.00' @ 654+59.45 From 1.00' @ 654+59.45 To 1.00' @ 655+59.47

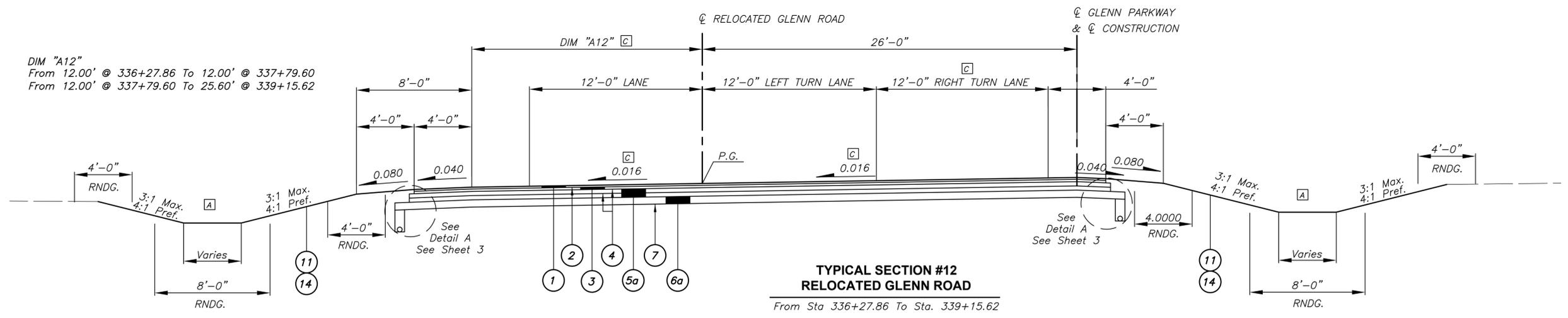
DIM "D5"
From 13.00' @ 652+62.45 To 13.00' @ 654+50.37 From 13.00' @ 654+50.37 To 1.00' @ 655+59.47

DIM "E5"
From 4.00' @ 652+62.45 To 4.00' @ 653+37.65 From 4.00' @ 653+37.65 To 4.00' @ 655+09.67 From 4.00' @ 655+09.67 To 9.00' @ 655+59.47

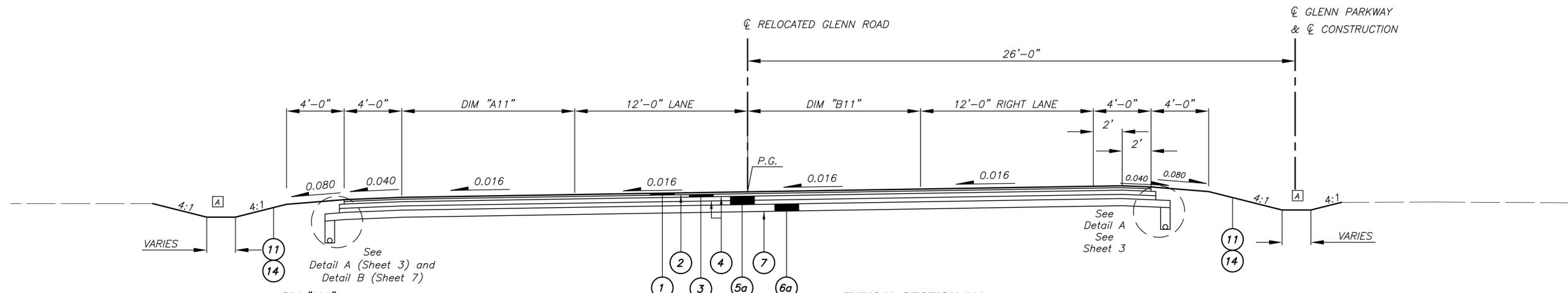
- LEGEND (ODOT SPECIFICATIONS UNLESS OTHERWISE NOTED)**
- | | | | | |
|--|---|---|------------------------------|--|
| ① Item 441, 1-1/2" Asphalt Concrete Surface Course, Type 1, (448), PG70-22M | ⑥ Item 304, 9" Aggregate Base | ⑫ Item 254, 1-1/2" Pavement Planing, Asphalt Concrete | (A) 11"± Asphalt Pavement | (A) Except As Shown on Plan Cross Sections |
| ② Item 407, Tack Coat For Intermediate Course (0.040 Gal/Sq Yd) | ⑥a Item 304, 6" Aggregate Base | ⑬ Item 407, Tack Coat (0.100 Gal/SQ. YD) | (B) 9"± Aggregate Base | (B) Ex. 6" Underdrain to Remain |
| ③ Item 441, 2" Asphalt Concrete Intermediate Course, Type 2, (448), PG70-22M | ⑦ Item 204, Subgrade Compaction | ⑭ Item 653, Topsoil Furnished & Placed | (C) 3-1/2"± Asphalt Pavement | (C) Except in Transition Sections |
| ④ Item 407, Tack Coat (0.075 Gal/Sq Yd) | ⑧ Item 605, 4" Base Pipe Underdrain | ⑮ Item 441, Variable Thickness, Asphalt Concrete Intermediate Course, Type 2, 448 PG70-22M, For Use As Directed By The Engineer | (D) 8-1/2"± Aggregate Base | |
| ④a Item 407, Tack Coat (0.250 Gal/Sq Yd) | ⑨ Item 255, Full Depth Pavement Sawing | ⑯ Item 421, Microsurfacing, Surface Course (Two Courses, T = 1/2" ±) | | |
| ⑤ Item 301, 10" Asphalt Concrete Base, PG64-22 (Place in two 5" Lifts) | ⑩ Item 254, Variable Pavement Planing, Asphalt Concrete | ⑰ Item 1510, Stress Absorbing Membrane Interlayer, Type 1 | | |
| ⑤a Item 301, 7" Asphalt Concrete Base, PG64-22 (Place in two 3-1/2" Lifts) | ⑪ Item 659, Seeding & Mulching, Class I | ⑱ Item 617, Compacted Aggregate | | |

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DIM "A12"
 From 12.00' @ 336+27.86 To 12.00' @ 337+79.60
 From 12.00' @ 337+79.60 To 25.60' @ 339+15.62



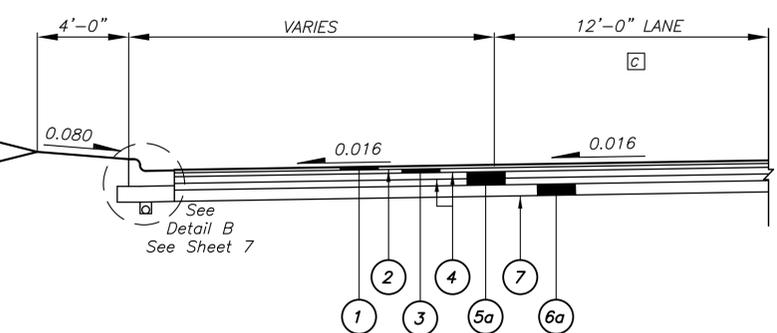
**TYPICAL SECTION #12
 RELOCATED GLENN ROAD**
 From Sta 336+27.86 To Sta. 339+15.62



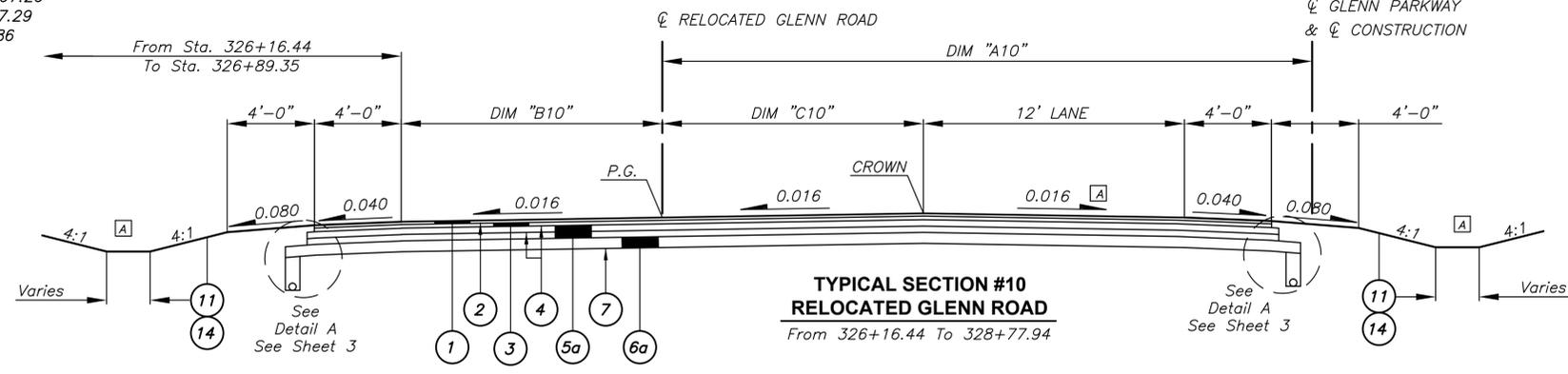
**TYPICAL SECTION #11
 RELOCATED GLENN ROAD**
 From Sta. 328+77.94 to Sta. 336+27.86

DIM "B11"
 From 7.48' @ 328+77.94 To 0.00' @ 330+15.36
 From 0.00' @ 330+15.36 To 0.00' @ 336+27.86

DIM "A11"
 From 14.50' @ 328+77.94 To 14.50' @ 329+00.00
 From 12.00' @ 329+00.00 To 12.00' @ 331+01.33
 From 12.00' @ 331+01.33 To 0.26' @ 331+50.95
 From 331+50.95 To 333+46.39 (See Intersection Detail)
 From 12.00' @ 333+46.39 To 12.00' @ 335+67.26
 From 12.00' @ 335+67.26 to 0.00' @ 336+17.29
 From 0.00' @ 336+17.29 to 0.00' @ 336+27.86



**TYPICAL SECTION #10A
 RELOCATED GLENN ROAD
 CURB AND GUTTER**
 From Sta. 327+85.70 to Sta. 329+00.00
 From Sta. 331+52.54 to Sta. 333+32.51



**TYPICAL SECTION #10
 RELOCATED GLENN ROAD**
 From 326+16.44 To 328+77.94

DIM "A10"
 From 11.02' @ 326+16.44 to 26.00' @ 328+77.94

DIM "C10"
 From 11.02' @ 326+16.44 To 7.48' @ 328+77.94

DIM "B10"
 From 18.02' @ 326+16.44 To 22.04' @ 326+56.09
 From 22.04' @ 326+56.09 To 30.17' @ 327+85.70
 From 30.17' @ 327+85.70 To 14.50' @ 328+77.94

NOTE:
 Refer to Intersection Detail
 Sheet 51 for Longitudinal
 Limits of Glenn Road Pavement
 Buildup.

LEGEND (ODOT SPECIFICATIONS UNLESS OTHERWISE NOTED)

- | | | | | |
|--|---|---|----------------------------|--|
| ① Item 441, 1-1/2" Asphalt Concrete Surface Course, Type 1, (448), PG70-22M | ⑥ Item 304, 9" Aggregate Base | ⑫ Item 254, 1-1/2" Pavement Planing, Asphalt Concrete | Ⓐ 11"± Asphalt Pavement | Ⓐ Except As Shown on Plan Cross Sections |
| ② Item 407, Tack Coat For Intermediate Course (0.040 Gal/Sq Yd) | ⑥a Item 304, 6" Aggregate Base | ⑬ Item 407, Tack Coat (0.100 Gal/SQ. YD) | Ⓑ 9"± Aggregate Base | Ⓑ Ex. 6" Underdrain to Remain |
| ③ Item 441, 2" Asphalt Concrete Intermediate Course, Type 2, (448), PG70-22M | ⑦ Item 204, Subgrade Compaction | ⑭ Item 653, Topsoil Furnished & Placed | Ⓒ 3-1/2"± Asphalt Pavement | Ⓒ Except in Transition Sections |
| ④ Item 407, Tack Coat (0.075 Gal/Sq Yd) | ⑧ Item 605, 4" Base Pipe Underdrain | ⑮ Item 441, Variable Thickness, Asphalt Concrete Intermediate Course, Type 2, 448 PG70-22M, For Use As Directed By The Engineer | Ⓓ 8-1/2"± Aggregate Base | |
| ④a Item 407, Tack Coat (0.250 Gal/Sq Yd) | ⑨ Item 255, Full Depth Pavement Sawing | ⑯ Item 421, Microsurfacing, Surface Course (Two Courses, T = 1/2" ±) | | |
| ⑤ Item 301, 10" Asphalt Concrete Base, PG64-22 (Place in two 5" Lifts) | ⑩ Item 254, Variable Pavement Planing, Asphalt Concrete | ⑰ Item 1510, Stress Absorbing Membrane Interlayer, Type 1 | | |
| ⑤a Item 301, 7" Asphalt Concrete Base, PG64-22 (Place in two 3-1/2" Lifts) | ⑪ Item 659, Seeding & Mulching, Class I | ⑱ Item 617, Compacted Aggregate | | |

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Job No.	20080386	Sheet	6 / 74
Date	February 2015	Scale	None
CITY OF DELAWARE, DELAWARE COUNTY, OHIO STREET IMPROVEMENT PLAN FOR GLENN ROAD / US-36 TO MILL RUN CROSSING IMPROVEMENTS			
TYPICAL SECTIONS GLENN ROAD			
REVISIONS	MARK	DATE	DESCRIPTION



CITY OF DELAWARE--CAPITAL IMPROVEMENT GENERAL NOTES

The City of Delaware "City" detailed specifications, standard drawings, and infrastructure design manual, together with the City of Columbus (COC) and State of Ohio Department of Transportation's Construction and Material Specification (CMS) manuals, including all supplements thereto, shall govern all material and workmanship involved in the improvements shown in these plans unless otherwise noted. All pertinent City standard construction drawings are available upon request of the department of engineering services.

All work shall be completely acceptable to City officials. No work shall commence until arrangements have been coordinated with the City for required inspections. Prior to beginning construction, the contractor shall make all arrangements necessary to coordinate the provision of inspection service by the City for the proposed work. The cost of inspection shall be paid for by the City unless otherwise noted.

The contractor shall provide written notification to the Department of Engineering Services at least 7 days prior to the initial start of any project.

Twenty-four hour advance notification is required for all work requiring inspection, testing, or approval by the Department of Engineering Services or the Building Department.

The contractor is responsible to notify the Department of Engineering Services and request a final punch-out inspection of the project site once all items on the approved construction plans have been completed.

Necessary line and grade staking shall be provided by the contractor at his expense. Cut sheets shall be submitted to the Department of Engineering Services two (2) full working days prior to the commencement of construction activities and must be approved by the City prior to the beginning of construction.

The contractor is responsible for providing the City copies of field notes, mark-up plans sets etc. to the Department of Engineering Services within 30 days following the completion of the project construction for use by the City in preparing as-built construction drawings.

For modifications to the work as shown on the approved construction drawings, the contractor shall make such requests in writing to the Department of Engineering Services for review and approval.

The City shall secure and pay for all permit fees and inspections required for the proper execution and completion of the improvements as shown on the approved construction plans.

It is the responsibility of the contractor to visit the site and verify the extent of the work to be performed in advance of making his bid, to identify the necessary construction means and methods to accomplish all work items, and to notify the Department of Engineering Services of any identified conflicts, errors or omissions from the construction plans.

The contractor or subcontractor shall be solely responsible for complying with all federal, state, and local safety requirements, together with exercising precautions at all times for protection of persons (including employees) and property. It is also the sole responsibility of the contractor or subcontractor to initiate, maintain, and supervise all safety requirements, precautions, and programs in connection with the work. The cost of this work shall be considered incidental to other items.

The contractor at his expense, is responsible for the investigation, location, support, protection, and restoration of all existing utilities and appurtenances whether shown on these plans or not. The contractor shall expose all utilities or structures prior to construction to verify the vertical and horizontal effect on the proposed construction. The contractor shall call, toll free, the Ohio Utilities Protection Service (OUPS) at 1-800-362-2764 seventy-two hours prior to construction and shall notify all utility companies at least forty-eight hours prior to work in the vicinity of their underground lines.

The contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on the approved construction plans is based on the most current available records, and at times from measurements taken in the field. The information provided is not to be relied on as being exact or complete. The City assumes no responsibility as to the accuracy or depths of the underground facilities as shown on the plans. The contractor must call the appropriate utility company at least seven days in advance of any excavation to request exact field location of utilities.

The contractor is responsible for coordinating the relocation of any privately owned utility as required by the approved construction plan, or that may be determined by additional field investigation to be in conflict with the construction of new infrastructure as shown on the plans, and to coordinate these efforts with the owner of the affected utility at his expense.

Where potential grade conflicts might occur with existing utilities, the contractor will be required to uncover such utilities at his expense, in advance of installing new utilities in order for the engineer of record to determine the exact elevations, and to make any necessary plan adjustments.

All materials including but not limited to piping, appurtenances, manholes, gravel, etc. Utilized for the construction of new public infrastructure must be approved by the Department of Engineering Services. In addition, all concrete pipe, storm, and sanitary sewer structures will be inspected by the City of Columbus at the manufacturing plant locations for conformance to specifications. Pipe or

structures without proper approval as identified by bearing the COC approval stamp, shall not be permitted for installation in the City of Delaware.

All field tiles broken during excavation shall be replaced by the contractor at his expense, to original condition or shall be connected to the storm sewer collection system as directed by the City.

The contractor shall repair or replace any property, utility, structure, or other infrastructure at his expense, damaged during the execution of his work to an equal or better condition than existed prior to the damage. All work is to be repaired or replaced to the satisfaction of the engineer of record and the City. Any damage to private utilities caused by the contractor shall be repaired by the appropriate utility company at the contractor's expense.

Care shall be exercised when working in the area around existing trees and shrubs. Any trees or shrubs not marked for removal that are damaged by the contractor will have to be replaced by the contractor at his expense to the satisfaction of the owner.

The City is responsible for providing and scheduling of qualified personnel for concrete, asphalt, and soils testing services as required. Testing shall be performed under the direct supervision of a registered testing agency approved by the Department of Engineering Services.

Any property corner pins or permanent survey markers disturbed during construction shall be reset by a registered surveyor at contractor's expense.

Existing structures to be removed or demolished require a "demolition permit" issued by the City Building Department.

The open burning of site cleaning debris, trash, etc. is prohibited in the City.

The contractor is responsible for the provision and maintenance of a portable toilet on the site during all phases of construction.

All earthwork operations, especially pavement sub-grade construction, shall be inspected by a registered soils engineer at the City's expense. Additionally, all final grades shall be field checked by both the contractor and City Inspector for conformance to construction plan grades.

Roadway Notes
All pavement sub-grade shall be constructed in accordance with Item 203 of the COC CMS, the soils report and as directed by the registered soils engineer present on the site. The City will strictly adhere to the compaction requirements set forth in section 203.07. Density testing must be performed on each lift of fill, and the soils engineer performing the testing must have detailed laboratory test data on site to support the values being utilized in the density calculations. The moisture content of the new fill shall be in the range of ± 2% of the optimum moisture content determined by ASTM D698. The City reserves the right to require density testing of sub-grade in newly cut areas where topsoil has been stripped in preparation for sub-base installation or filling operations, in order to evaluate the necessity for additional compaction effort.

All pavement joints, particularly where a proposed pavement abuts an existing pavement, and all pavement joints abutting the curbline or utility structures such as manholes, catch basins, valve boxes, etc. Shall be sealed in accordance with Item 423 type (1) of the COC CMS.

At the direction of the City, the placement of the final wearing course of Item 441 asphalt concrete may be delayed until such time that the weather permits.

All asphalt concrete paving operations shall be regulated as specified in COC CMS Item 400 flexible pavement.

Pavement cuts for utility line installations are subject to the backfill requirements of Item 912. In lieu of compacted granular material, flowable controlled density fill, Item 613 type-II may be used. Pavement shall be constructed to match the existing section or nine inches of asphalt concrete, whichever is greater. As an alternative, the contractor may choose to repair the pavement with a 7" Class "C" concrete base extending 1'-0" beyond all edges of the excavation, and finished with a 2-inch Item 441 asphalt wearing course.

Steel plates shall be positioned and secured in place with steel spikes and cold patch asphalt mix over all trenches that are left open on a temporary basis and subject to traffic. The contractor is responsible for reporting the location of all steel plates directly to the Department of Public Works and providing 24-hour contact information in the event the plates require adjusting or repair.

Proactive measures shall be taken by the contractor to keep public streets clean and free from mud, stone, dirt, etc. At all times. A stabilized construction entrance, as specified in the plans, is to be diligently maintained at the construction site entrance(s) throughout the project. If the entrance is rendered ineffective in the judgement of the City, work on the project may be suspended until the entrance is made effective.

Concrete curbs are to be branded during placement utilizing the standard brand set provided by the Department of Engineering Services. Brands that are missed must be mechanically ground into the curb after concrete is set. Brand curbs are as follows: "s"-on top of curb for sanitary lateral locations. "w"-on face of curb for water service box locations. "vw"-on face of curb for hydrant watch valve locations. "wm"-on face of curb for water main valve locations. "sm"-on face of

curb for sanitary/storm manhole locations.

The combination curb and gutter shall be placed continuously. The curb shall have control joints mechanically cut at 10'-0" spacing within 24 hours from being poured. Driveway curb cuts shall be formed per the approved construction plans.

Monument boxes shall be installed at intersections designated on the plan by the contractor with the support of his surveyor. Boxes shall be Neenah R-1968, Type 36-8 or East Jordan Iron Works No. 8371. Monuments are to be set in a concrete filled 24" diameter cored hole, flush with the top of the pavement per City standard.

Proof Rolling: The following specifications are put in place by the City of Delaware in addition to the COC CMS Item 204, subgrade compaction and proof rolling/test rolling: For areas where subgrade appears to be stable without undercutting, proof roll after the top 12 inches of the subgrade meets the compaction requirements and after the subgrade has been brought to approximate shape within 0.1 to 0.2 feet required by plan grade. For areas that are unstable and require undercutting, it is not necessary to commence a formal proof roll to demonstrate that subgrade correction is required. Correction must be authorized by the City at the time of rough grading and must be based on recommendations from the soils engineer. Proof rolling must be treated as the final verification that all repairs have been performed. Failed proof rolls following corrective action will be at the contractor's expense. Proof rolling must be done immediately after the subgrade compaction operation, when the moisture content of the subgrade soil is near optimum or at the moisture content that achieved compaction. Unstable or hard pan conditions encountered during proof rolling operations, which result from the failure of the contractor to maintain the specified density and moisture requirements, must be corrected by the contractor at the contractor's expense. If it becomes necessary to take corrective action, such as but not limited to underdrain installation, undercut and backfill of an unsuitable material, aeration of excessively wet material in areas that have been proof rolled, or (if hard pan exists) reconditioning the upper portion of the subgrade, these areas shall be proof rolled again following the completion of the necessary corrections. If the corrections are necessary due to the negligence of the contractor and/or weather, the corrective work and additional proof rolling must be performed by the contractor at no cost to the city. The contractor shall be required to perform a proof roll along the curb line to confirm that there is no unsuitable material in advance of installing curb drain, stone or concrete curbing. Proof rolling for the pavement area may occur either before or after pipe underdrains are installed. If following the installation of underdrains, rolling should not occur directly over the underdrains. In 204.06, proof rolling must be performed at least 1-1/2 feet away from the underdrains because of the potential damage to the underdrains.

Storm Sewer Notes
All storm sewer shall be installed in accordance with the specifications contained within the COC CMS 2012 version, except as modified within the City of Delaware General Notes, standard drawings and infrastructure design manual. The minimum requirements for storm sewer pipe within the city right of way or easements shall be reinforced concrete pipe ASTM C655, ASTM C76, non-reinforced concrete pipe ASTM C14, or HDPE pipe (ADS or approved equal). All pipe manufacturers materials must appear on the COC list of approved storm sewer materials to be used in the City of Delaware.

Flexible storm sewers within the right of way will be deflection tested and/or video inspected at the contractors expense. Testing shall be performed no sooner than thirty days after the pipe trench has been backfilled. Maximum deflection shall not exceed 5% of the base inside diameter. The contractor is responsible for arranging for the required testing and for notifying the Department of Engineering Services in advance to witness the testing.

All flexible pipe installations that are subject to construction loading shall maintain a minimum cover of 2'-0" at all times during the construction process. Testing shall not occur until all construction loading above the sewer is complete.

HDPE pipe joints shall be made using watertight couplers with o-ring gasket, ADS WT or approved equal. Where rubber o-ring gasket ((ASTM C361) pipe is required on the plans. All other pipe shall have a bell and spigot joint with rubber gasket meeting ASTM F477.

All storm manholes shall be marked with a 4"x 4"x 10'-0" pressure treated wood wye-pole projecting 4'-0" above the finish grade and with the top 1'-0" painted green on four sides. The cost shall be included in the various sewer items.

Storm sewer pipe shall not be installed in any trench holding water. The contractor is responsible for the cost of dewatering operations required for the construction of the storm sewer.

If rock must be excavated within a proposed trench area, the contractor shall remove enough rock below the bell and flowline of the pipe in order to install the appropriate amount of bedding material. Excavated rock may not be used as backfill material. The cost of any rock excavation shall be included in the bid price for various sewer items.

The flow in all sewers, drains and watercourses encountered shall be maintained by the contractor at his own expense, and whenever such watercourses and drains are disturbed or destroyed during construction, they shall be restored by the contractor to a condition satisfactory to the City. All major flood routes and storm water basins are to be surveyed by a

registered surveyor at the contractors expense to verify conformance to the approved grading plans. Survey results are to be included on the as-built construction plans.

The contractor is responsible for the proper installation (prior to the start of construction), maintenance, and replacement of sediment and erosion control measures per the approved SWPPP and per the current OEPA General Permit for construction stormwater requirements, under which this project has obtained coverage. The contractor will be responsible for paying any fine levied by the OEPA resulting from failure to adhere to the SWPPP and/or the requirements of the OEPA General Permit. The contractor must register as a co-permittee for this project (with the OEPA) prior to the commencement of earth disturbing activities. The contractor and all subcontractors involved in the implementation and maintenance of the SWP3 must sign a des form acknowledging they have reviewed and understand the conditions and requirements of the SWP3 prior to commencement of construction activities.

Shop drawings for all storm structures must be submitted by the contractor and approved by the Department of Engineering Services before ordering structures.

All catch basins, manholes, and curb inlets shall have concrete channels poured in place to assure positive drainage through these structures.

Public storm sewer manhole lids are to be East Jordan Iron Works No. 1661-A1 or equivalent, and embossed "City of Delaware Storm Sewer".

Storm sewer curb inlets are to be adjusted within 1/4" of plan elevation using steel shims. Curb inlet hoods shall be embossed with the wording "Drains To The River" per the City Standard Drawing.

Water Line Notes
All water lines, fittings and appurtenances shall be installed in accordance with the specifications contained within the COC CMS 2012 version, except as modified within the City of Delaware General Notes, standard drawings and infrastructure design manual.

Any activity related to the modifying, upgrading, or expanding the public water system must have pre-approval of the Department of Engineering Services and Utility Department. Work requiring the shutdown of existing water mains is to be coordinated with these two departments forty-eight hours prior to the scheduled work being performed. All effected customers shall be notified, in writing, by the contractor at least twenty-four hours prior to shut down. City approval of all customer notifications is required in advance of distribution.

Water mains shall be ductile iron pipe, Class 53 for sizes 3" to 10" and Class 54 for sizes 12" to 48" (AWWA C151) with cement mortar lining and seal coating (AWWA C104) in accordance with city specifications, unless called out otherwise by these plans. Joints must be rubber gasket push-on mechanical (AWWA C111). Water main fittings must be ductile iron with cement mortar lining and seal coating with mechanical joints and must conform to AWWA C153, unless specified otherwise by these plans. Joint restraints must be per the approved plans.

All piping 2" or less in diameter between the water main and the control valve or meter pit shall be Type K, soft tempered copper tubing conforming in all respects to ASTM B88. Fittings shall be Ford or Mueller high quality copper brass with AWWA approved compression type joints. There will be no fittings permitted between the water main connection and the control valve.

Dead-end water lines shall terminate with a fire hydrant and watch valve followed by a main line valve and an additional section of water line plugged and blocked per the standard drawings.

Water lines shall be installed with a minimum of 4'-0" of cover measured from the finished grade to the top of the water main, or as indicated on the approved construction plans.

All main line valves, hydrant watch valves, curb boxes, and dead end lines are to be marked with a 4" x 4" x 10'-0" pressure treated wood wye-pole projecting 4'-0" above the finished grade and with the top 1'-0" painted blue on four sides. Posts are to be maintained until the area is has undergone final grading and seeding. The cost shall be included in the various water items.

If there are any conflicts in grade between water line and sewers, the water lines shall be lowered during construction.

The contractor shall be responsible for the horizontal and vertical deflections or bend in the water line in accordance with the manufacturer's specifications. Water lines are to maintain 1'-6" vertical, and 10'-0" horizontal clearance from sanitary sewers and storm sewers.

Prior to making a connection to the public water system, the contractor shall coordinate any necessary operation of the public waterline valves directly with the department of public utilities.

The water service taps shall consist of all pipe, valves, fittings, and appurtenances necessary to connect to the public water main and complete the installation according to the standards set forth in the approved construction plans.

The valve covers and inside of all mainline water valve boxes shall be painted blue, and the valve covers and inside of all fire hydrant watch valve boxes shall be painted red with 2 coats of rust inhibitive paint. Public fire hydrants are to be painted with two coats of federal safety yellow. Private fire hydrants are to be painted federal safety red, with white bonnets and nozzle covers.

Job No. 20080386, Date February 2015, Sheet 8 / 74, Scale NONE, CITY OF DELAWARE, DELAWARE COUNTY, OHIO, STREET IMPROVEMENT PLAN FOR GLENN ROAD / US-36 TO MILL RUN CROSSING IMPROVEMENTS, GENERAL NOTES, REVISIONS, MARK DATE DESCRIPTION

All mechanical fasteners, bolts, all thread rod, etc. Are to receive one coat of rust inhibitive paint or coating.

If the top of the valve operating nut is more than 36" inches below finished grade, an extension stem shall be furnished to bring the top of the operating nut to within 24" of finished grade elevation. All valve stem extensions are to be installed with the extension secured directly to the valve operating nut with galvanized bolts.

Water line shall not be installed in any trench filled with water. The contractor is responsible for the cost of dewatering operations required for the construction of the water line.

All fittings shall be adequately restrained with solid or poured in place concrete blocking per the City standard drawings. All fittings to be backed must be thoroughly wrapped in plastic sheeting prior to placing concrete.

Fire hydrants shall meet AWWA standards and are to be Mueller "Super Centurion 250"A-423 or "Clow Medallion" on type "A" setting with national standard threads for the 2-1/2" hose nozzles and watch valve directly mounted to anchor tee. Type "B" settings shall not be used unless approved by the City. All piping between the watch valve and hydrant shall be mechanical joint fittings. The connection to the hydrant shall be a 5" Stortz fitting with a quick release locking coupling. All safety chains are to be removed from hydrants.

All fire department connections (standpipes) shall have a 45' downturn fitting to reduce kinking in the fire hose. The connection to the standpipe shall be a 5" Stortz fitting with a locking coupling.

All new main line and hydrant watch valves are to be directly bolted to the anchor tee with anchor type fittings.

The installation of 3/4" and 1" water taps shall be made by direct tap direct taps are not permitted to any asbestos mains. 1 1/2" and 2" water taps shall be made with a Ford style FC-202. 3" and 4" water taps shall be made with a Ford style FS-202. 6" water taps and larger shall be made with a Ford FTSS tapping a JCM 432 is an approved equal.

All gate valves must be ductile iron resilient wedge 250 PSI as manufactured by American Flow Control or approved equivalent which meets or exceeds the requirements of ASNSI/AWWA C515. Clow valve company, model number 2638 approved for 16". 6" and 8" must be ductile iron and epoxy coated.

Valve boxes are to be Tyler 6850 series cast iron 2-piece screw type for main and watch valves and Tyler 6500 series cast iron 2-piece screw type service boxes for curb valves. Star pipe products 2-piece screw type valve box item code VB5645 39-50 approved.

For water service taps; The water main connection shall be made using a Mueller 300 ball type B-25008 or Ford FB1000-Q ballcorp corporation stop. Control valves shall be Mueller 300 ball curb valve B-25209 or Ford B44-Q ball valve curb stops (quarter turn only).

Water service boxes are to be installed in pairs along property lines, set 8'-0" apart and 2'-0" outside of the right of way line. A minimum bury depth of 48" below top of curb must be maintained for all water services in the right of way.

All water lines shall be tested (AWWA 600) and sterilized (AWWA C651) by the contractor at his expense in accordance with the City and AWWA specifications. Testing shall be done under the supervision of the Department of Engineering Services.

All meters (other than standard 5/8" x 3/4" residential meter) and all backflow devices specified for this project must be delivered to the City Department of Public Utilities for inspections and approval prior to installation.

Meter pits, including all piping, fittings, equipment, and appurtenances, must be approved by the City through a scheduled field inspection during the installation. The Department of Public Utilities is responsible for inspecting the domestic water meter pit, domestic water line, and associated appurtenances. The Department of Planning and Community Development is responsible for the inspection of: The fire line, thrust blocks for the fire line, meter pit-fire line connection, fire department connection, and valve monitoring. Prior to burying the water service, the appropriate department representative shall be contacted by the contractor to arrange for the required inspection of each portion of the service. Failure to having the inspection performed will result in having to uncover the service for inspections at contractor expense.

The pressure required to perform hydrostatic testing on water lines is 150 PSI for domestic lines and 200 PSI for fire suppression lines (per NFPA 13).

The contractor at his expense, shall clean all water mains 12" and larger by passing a properly sized poly pig through the pipe per COC 801.11.

All mechanical joints within the meter vault shall include factory manufactured flanges. No uni-flanges are permitted. All joints and fittings located on the supply side within 20-feet of the meter vault shall be restrained using approved mechanical joint restraints.

Sanitary Sewer Notes

All sanitary sewer shall be installed in accordance with the specifications contained within the COC CMS 2012 version, except as modified within the City of Delaware General Notes, standard drawings and infrastructure design manual. The contractor's specific attention is directed to the requirements of either the infiltration or exfiltration as specified by the COC CMS Section 900. All sanitary sewers, manholes and services shall

be tested by the contractor at his expense. All sanitary sewers shall be subject to, and pass the infiltration or exfiltration test prior to acceptance, including vacuum testing of manholes. An air test is acceptable to the City. This air test shall be performed according to the current regulations.

Clean water connections including roof drains, foundation drains, sumps, are prohibited from being connected to the sanitary sewer system.

The minimum requirement for sewer pipe on this project shall be SDR 35 (SDR-26 if depth exceeds 20'), ASTM D3034 polyvinyl chloride (pvc) sewer pipe with ASTM C1784 cell classification of 12454 B or 12454 C, ASTM F679 pvc sewer pipe ASTM cell classification 12454, or CCFRPM, ASTM D3262-Type 1, liner 2, grade 3, stiffness 72 PSI, unless otherwise shown on the plans. Pipe manufacturers must be on the current COC approved list, and require the additional approval of the City Director of Public Utilities.

Pipe for all 6" services shall be pvc sewer pipe ASTM D-3034, SDR-35 (or SDR-26 if bury depth exceeds 20'-0"). The services are subject to either the infiltration or exfiltration testing requirements. All service extensions shall be installed at a minimum grade of 1/4" per foot and shall be constructed at the time of construction of the main sewer, unless otherwise directed by the City.

Clay dams are to be installed along main line sewers at half the distance between each pair of manholes, but no closer than 10'-0" from a lateral service. Dams shall be a minimum of 6'-0" long. Dams are to be installed by the contractor, the cost of which shall be included in the sanitary items.

Clay dams are to be installed on all sanitary laterals, but no closer than 5'-0" from the end of the service. Dams shall be a minimum of 6'-0" long. Dams are to be installed by contractor, the cost of which shall be included in the sanitary items.

All pvc pipe shall be deflection tested thirty days or more after the trench has been backfilled to finished grade. A rigid mandrel shall be used for the testing. No mechanical pulling devices shall be used. Pipe deflection shall not exceed five 5%.

Public sanitary manhole covers are to be East Jordan Iron Works No. 1661-A2 or equivalent, with enclosed pick holes and embossed "City of Delaware Sanitary Sewer".

All sanitary manholes and lateral services are to be marked with a 4"x4"x10'-0" pressure treated wood wye-pole projecting 4'-0" above the finished grade and with the top 1'-0" painted green on four sides. Additionally a 2"x2" hardwood wye pole is to be wired to the base of each 4"x4" pole and extended down to the end of each lateral service. Cost to be included in the various items. Individual lateral service wye-poles are to be installed as each lateral is constructed. The cost shall be included in the various sewer items.

Where the cover to finished grade over a sanitary wye is in excess of 12'-0", a length of riser pipe and a 45' bend shall be installed along with a minimum of one whole length of 6" pipe such that the end of the service will be 10'-0" below grade.

Where the sanitary sewer crosses under a proposed storm sewer or waterline the trench shall be backfilled to the bottom of the proposed storm sewer or waterline with compacted granular material Item 912, for a length of 10' if centered on the storm sewer or waterline. The cost of this work is to be included in the price bid for the various sewer items.

Prior to construction, the contractor shall verify existing tie-in manhole flowline and top-of-casting elevations. Manholes shall be built or adjusted so the tops conform to the elevations shown on these plans. All manhole casting adjustments shall be accomplished with pre-cast concrete or HDPE preformed manhole adjustment rings.

All sanitary lines shall be installed with stone or gravel bedding as shown in the standard drawings.

Sanitary trench details shall be in accordance with City standard drawings.

Temporary bulkheads shall be placed where indicated on the plans and shall remain in place until removal is directed by the City.

Sanitary laterals to adjacent lots shall be installed in a 4'-0" wide common trench, spaced with 2'-0" center to center separation, and with 1'-0" minimum bedding around pipes. The ends of the services are to be flared apart to a minimum 10'-0" center to center separation at 5'-0" outside the right of way line.

Project Notes
ODOT Item 203 - Excavation, As Per Plan

The excavation of asphalt pavement, asphalt curb, brick materials, topsoil or unsuitable materials not otherwise itemized on this project are included within ODOT Item 203, Excavation, As Per Plan quantities for payment. The contractor may reuse or stockpile topsoil on site for future work at the contractor's expense where topsoil excavations are not otherwise accounted for. All material excavated for construction including topsoil and debris shall be removed from the site and disposed of at the expense of the contractor unless otherwise instructed by the Engineer. No materials excavated are to be reused without prior written permission by the Engineer.

All soil stockpiles, including trench excavation stockpiles shall be protected from erosion by perimeter control devices such as straw bale dikes or silt fences. These perimeter control devices shall be maintained throughout the life of the project. Excavated materials shall not be stored on existing

public roadway pavements. This includes excess or unusable excavated soil.

Note, that the City, County or Owner shall not enter into any contracts with the contractor or private owner for the disposal of materials. The City shall not be responsible for any damages done to private property within or outside of the project limits during disposal.

All materials to be disposed of off-site must be disposed of in an environmentally sound manner in accordance with local, state and federal regulations. No excess materials are to be disposed of in any wetland, flood plain, or other environmentally sensitive areas, erosion control measures at the disposal site must be installed and maintained until disposal is complete and the disposal site permanently stabilized. For disposal outside the limits of the project the contractor shall provide a copy of the signed, written agreement between the contractor and the off-site landowner before such disposal occurs. This written agreement shall clearly state the purpose of the agreement and indicate the landowner's permission for such use. The acquisition of this site is the contractor's responsibility. No separate payment will be made.

No extra compensation will be paid for any excavation required in rock or shale. The contractor shall examine the soils report prior to bidding to determine if any rock or shale excavation will be required and adjust the unit price bid for this item accordingly.

Placing Feathered Areas
Items, such as wearing course removal or asphalt cement coating, that are necessary to construction butt joint or taper edge type feathered areas per ODOT Standard Construction Drawing BP-3.1 are to be considered incidental to construction and are to be included with associated pavement items for payment.

Abandoned Utilities
The contractor shall be responsible for the removal and disposal of any abandoned utility facility that may conflict with any facility or construction activity proposed in these plans, including the installation of proposed conduit, underdrain, storm sewer, structure, waterline, sanitary sewer line, subgrade stabilization, foundations, etc. The contractor is advised to verify that a utility facility has been abandoned before proceeding with removing it. If it is determined that the utility facility is active and in conflict, then the contractor shall notify the Engineer prior to proceeding with any affected proposed work.

The cost of the operations necessary to remove and dispose of conflicting abandoned utilities shall be included with the price of the affected item for payment. No separate payment shall be made.

Coordination With Utilities
The contractor is advised that some utility facilities may not be clear of the construction area during the time of construction. These utility facilities may remain in place or be relocated within the construction limits. The contractor shall not wait on the relocations to be completed, but instead shall cooperate with the utilities including their contractors, and work around the existing facilities. Sections 105.07 and 107.16 of the Ohio Department of Transportation Construction and Material Specifications require that the contractor cooperate with all utilities located within the limits of this construction project and take responsibility for the protection of the utility property and services. No separate payment shall be made for the contractor to coordinate with utility companies.

The contractor shall exercise caution when working in the proximity of existing and/or relocated utility facilities. Costs to expose conduit shall be included in the items of work affected. The contractor is reminded to keep their OUPS ticket updated according to industry practices.

Existing Underdrains
Underdrains encountered within the project limits may remain in place and be connected to the proposed drainage system where directed by the Engineer. Underdrains found to be in conflict with the improvements shall be removed and disposed of. Cost for removal of existing underdrains shall be included with either curb removal, curb & gutter removal or ODOT Item 203, Excavation for payment.

ODOT Item 606 - Anchor Assembly, MGS Type E
This item shall consist of furnishing and installing any of the guardrail end terminals for type MGS guardrail as listed on roadway engineering's web page under roadside safety devices for approved guardrail end treatments. Installation shall be at the locations specified in the plans, in accordance with the manufacturer's specifications.

The face of the Type E impact head shall be covered with a sheet of Type G reflective sheeting, per CMS 730.19.

Refer to the manufacturer's instructions regarding the installation of, and the grading around the foundation tubes and ground strut. The top of any foundation tube should be less than 4 inches above the ground. The placement of the foundation tubes should be an appropriate depth below the level line in order to maintain the finished guardrail height of 31 inches from the edge of the shoulder.

On-site grading is required if the top of the foundation tubes or top of the ground strut does project more than 4 inches above the ground line.

Payment for the above work shall be made at the unit price bid for Item 606, Anchor Assembly, MGS Type E, Each, and shall include all labor, tools, equipment and materials necessary to construct a complete and functional anchor assembly system, including all related transitions, reflective sheeting, hardware, grading, embankment and excavation not separately specified, as required by the manufacturer.

ODOT Item 201 - Clearing and Grubbing, As Per Plan
All trees, fence posts, rocks, brush, stumps and fence specifically marked

for removal that has not been itemized within the construction limits of this project shall be removed under the lump sum price bid for ODOT Item 201, Clearing and Grubbing, As Per Plan. Reference plans for tree lines designated to be removed and included in ODOT Item 201, Clearing & Grubbing, As Per Plan. The city reserves the right to order the removal of additional trees or stumps outside of the limits of the right of way and/or easement lines but within the work limits. Payment for the removal of these additional trees or stumps shall be included in the lump sum price bid for ODOT Item 201, Clearing and Grubbing, As Per Plan. The following is an approximate estimate of trees to be removed under ODOT Item 201 - Clearing and Grubbing, As Per Plan.

Sizes No. Of trees
12" 2

ODOT Item 690 - Special, Misc.: 4" Communication Conduit
Contractor shall furnish two parallel conduits for future use by Verizon Communications. Conduit shall meet ODOT CMS Item 707.45 and shall be 4" diameter. Installation of conduit shall be in accordance with ODOT CMS Item 611 with a minimum cover of 36" below final grade. Provide either 10 AWG pull wire or 1/4" diameter nylon double braid pull rope within conduit and secure at conduit ends. Use forty-five degree sweeps at beginning and end of conduit run in order to terminate conduit one foot above final grade. Install Fernco Quik Cap with stainless steel clamp, or approved equal, at conduit ends.

All labor, material, and equipment shall be paid for under Item 690 - Special, Misc.: 4" Communication Conduit

Standard Topsoil, Seeding, Fertilizer, and Mulching
All topsoil shall be of the highest quality and free of all stones, trash and other deleterious materials greater than 1/4". Organic content shall be tested by an approved lab and certified to be between 10-20% by weight, and all topsoil shall be saturated with water and allowed to settle prior to seeding. Settled areas shall be refilled and saturated again prior to seeding. The grades shall match all existing landscape and any improvements completed under this plan. The contractor shall scarify the soil surface to open the soil prior to seeding. All seeding, fertilizer, and mulch shall be placed within 5 working days of placing topsoil. The seeding and fertilizer mixes shall be as specified by the city and shall be installed per the manufacturer's recommendations. The starter-fertilizer mix shall contain a minimum of 3% siduron, to prevent weed establishment. No weeds or undesirable grasses will be accepted in the final inspection. If the initial seeding is not 95% established by September 15th, the contractor shall re-seed, fertilize, and mulch the bare areas prior to October 1st.

Utilities:
The identity and locations of existing underground utilities in the construction area have been shown on the approved construction drawings as accurately as provided by the owner of the underground utility as required by section 153.64 or section 3781.27 of the Ohio revised code. The City of Delaware and the Engineer assume no responsibility for the accuracy of locations or depths of underground facilities shown on the approved construction drawings. When unknown or incorrectly located underground utilities are encountered during construction, the contractor shall immediately notify the utility owner and the City.

The Contractor shall notify the Ohio Utilities Protection Service (OUPS) at (1-800-362-2764) at least 48 hours, and no more than 10 days prior to excavating, with such time periods not including weekends or holidays. Contractor shall similarly contact all utility owners who are not subscribers to OUPS.

Non-Rubber Tired Vehicles
No non-rubber tired vehicles shall be moved on City streets. Exceptions may be granted by the City of Delaware where short distances and special circumstances are involved. Granting of exceptions must be in writing, and any damage must be repaired by the contractor to the satisfaction of the City of Delaware.

ODOT Item 253 - Pavement Repair
This item should be used for pavement repair and shall meet the requirement of Item 253, Pavement Repair, and the below typical section. All Standard pavement repair notes from standard detail RDWD-18.2 apply.

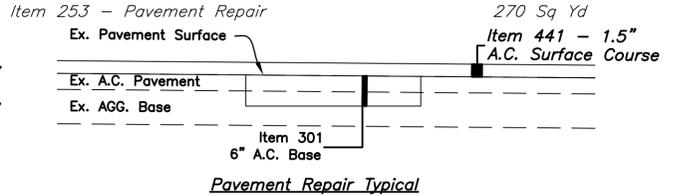
The estimated quantities are to be considered approximate. A final field review will be performed by the engineer prior to construction and final location will be given to the contractor prior to construction.

This work consists of full depth sawcut & removing the existing asphalt concrete; shaping and compacting the exposed material; and placing Item 301 Asphalt Concrete Base.

The following estimated quantities have been provided for information only.

Item 202 - Pavement Removed	270 Sq Yd
Item 255 - Full Depth Pavement Sawing	400 Ft
Item 301 - Asphalt Concrete Base	45 Cu Yd

The following estimated quantity has been carried to the general summary to be used as directed by the engineer. Final payment for these items shall be for the accepted quantity completed in place.



Job No. 20080386	Date February 2015	Sheet 9 / 74
CITY OF DELAWARE, DELAWARE COUNTY, OHIO STREET IMPROVEMENT PLAN FOR GLENN ROAD / US-36 TO MILL RUN CROSSING IMPROVEMENTS		
GENERAL NOTES		
EMHT Ernst, Meecham, Tomblin & Tilton, Inc. Engineers • Surveyors • Planners • Scientists 5500 New Albany Road, Columbus, OH 43224 Phone: 614.776.5500 Fax: 614.776.5501		
REVISIONS	MARK	DATE
DESCRIPTION		

PROJECT NOTES

The following additional utilities are known or can be expected to be located within the limits of this project

City of Delaware
Department of Public Utilities
225 Cherry Street
Delaware, Ohio 43015
Attn: Brad Stanton
Phone: (740) 203-1900

Frontier/Verizon Communications
1300 Columbus Sandusky Road
Marion, Ohio 43302
Attn: Chris Avery
Phone: (740) 383-0551

Consolidated Electric Cooperative, Inc.
680 Sunbury Road
Delaware, Ohio 43015
Attn: Tim Applegate
Phone: (740) 363-2641
(800) 421-5863

Time Warner Engineering
3760 Interchange Drive
Columbus, Ohio 43204
Attn: Ray Maurer
Phone: (614) 481-5262

Suburban Natural Gas
2626 Lewis Center Road
Lewis Center, Ohio 43035
Attn: Aaron Roll
Phone: (740) 548-2450

American Electric Power Co.
850 Tech Center Drive
Gahanna, Ohio 43230
Attn: Paul Paxton
Phone: (614) 883-6701

Del-Co Water
6658 Olentangy River Road
Delaware, Ohio 43015
Attn: Shane Clark, P.E.
Phone: (740) 548-7746 x2191

Procedure for construction and stabilization of subgrade
Construct the subgrade as follows and in the following sequence

- 1. After clearing and grubbing, strip and stockpile topsoil within the limits shown on the plan cross sections.
2. Following site stripping, excavate the subgrade to within 0.2 of a foot of the plan subgrade elevation.
3. Remove any remaining vegetation, topsoil, organic material, existing asphalt and granular base, and any other unsuitable materials...
4. Once the subgrade is exposed and prior to the placement of any pavement materials or new fill in embankment areas, the entire exposed subgrade is to be proof rolled per C.O.D. Proof rolling supplemental specification, in order to detect any soft, wet or weak zones.
5. If any soft, wet or weak zones are present, as determined by the Engineer, the materials in these zones are to be either scarified, dried, and thoroughly recompact in place in accordance with ODOT CMS Item 204, or be removed and the over excavation filled in a controlled manner as per plan as directed by the Engineer.
6. Construct embankment per ODOT Item 203 to plan grades and compact the subgrade according to ODOT CMS 204.03.
7. Proof roll the compacted subgrade according to C.O.D. Proof rolling supplemental specification to Verify the uniformity of the subgrade compaction. Based on the proof rolling results, the Engineer will identify the actual location and limits of any soft soils.
8. After the soft soil areas have been determined, the Engineer will adjust the plan width and depth by utilizing test pits according to the ODOT construction inspection manual.
9. As directed by the Engineer, undercut the Engineer identified soft soil areas. Replace undercut areas with the specified materials and in accordance with ODOT CMS 204.07. Undercuts are to extend 18 inches beyond the edge of the surface of the pavement, paved shoulders, or paved medians.
10. Proof roll the undercut areas according to ODOT CMS 204.06 to verify stability of the undercut areas.

Removal and Replacement of Soft or Unsuitable Materials

Areas requiring over excavation or undercut, as determined by the Engineer, shall be excavated in accordance with ODOT Item 204, excavation of subgrade. The over excavated or undercut areas are to be filled as directed by the Engineer in a controlled manner in accordance with ODOT CMS 204.07 and as follows.

Prior to placement of any new fill or pavement construction, areas of over excavation or undercut are to be replaced with fill comprised of geo-grid tensor (BX-1300 or structurally and engineer approved equal) and granular material consisting of No. 2 stone or No. 4 stone meeting the requirements of ODOT CMS 703.01; Or ODOT Item 204, granular material, Type B; Or with properly compacted new fill meeting the requirements of ODOT Item 204, Embankment; Or with excavations scarified to permit drying and recompact to the appropriate design unit weight at the discretion of the Engineer.

Geo-grid shall be placed in accordance with the manufacturer's recommendations and then overlaid with a minimum of 12 inches of granular material, Type B, or No. 2 stone or No. 4 stone as directed by the Engineer.

The following estimated contingency quantities are carried to the general summary for use as directed by the Engineer for removal and replacement of soft or unsuitable materials as described above:

ODOT Item 204, Excavation of Subgrade: 1000 Cu. Yd.
ODOT Item 204, Granular Material, No. Type B: 1000 Cu. Yd.
ODOT Item 204, Geotextile Fabric: 1500 Sq. Yd.

Replacement of Drain Tiles and Storm Sewers

All drain tile and storm sewers damaged, disturbed, or removed as a result of the contractor's operations shall be replaced with the same quality pipe or better, maintaining the same gradient as existing. Replaced drain tile shall be laid on compacted bedding equal in density to surrounding stratum. Replacement shall be done at the time of the backfill operation. Cost of this work to be included in the price bid for the various items.

Maintain Drainage

The flow in all sewers, drains, and watercourses encountered shall be maintained by the contractor at his own expense, and whenever such watercourses and drains are disturbed or destroyed during the prosecution of the work, they shall be restored by the contractor at his own cost and expense, unless specific provision is made within the contract documents for the measure of and payment for such cost specific items, to a condition satisfactory to the Engineer.

Right-of-Way

In addition to the direct requirements of the contract specifications, the contractor shall observe and conform to the specific requirements of all right-of-way, including easements, court entries, rights of entry, or action filed in court in accordance with the code of the applicable governing agency. The cost of the operations necessary to fulfill such requirements shall be included in the price bid for the various items of the contract unless specific provision is made in the contract specifications for such cost under specific items of the contract. Approval of this plan is contingent on all easements required for the construction of the work being secured and submitted to the City of Delaware for recording prior to commencement of the work, and no work which requires an easement will be allowed to proceed until this has been done. The contractor is responsible for containing all performed work and all equipment, materials, vehicles, etc., used to complete the work within the Rights-of-Way of the streets, roadways and permanent easements, as shown on these plans. The contractor is responsible for cost of restoration for any area outside of the right of way or permanent easement to former condition and to the satisfaction of the property owner.

Contract Work Performed by the City

In the event that it becomes necessary for the City to perform work of an immediate nature (such as the placement of barricades or replacement of signs or other warning or protective devices) required of the contractor by this contract because of failure or refusal of the contractor to perform such work, the contractor shall reimburse the City at the rate of 2.5 times the actual cost of labor, materials and equipment necessary to perform such work. The City shall be reimbursed by the contractor by way of a deduction from the contractor's net payment under the contract.

Elevation Datum

Elevations shown on these plans are based on NAVD 88 datum.

Grade Checks

The contractor shall ensure there is a surveyor's level and rod on the project for use in performing grade checks whenever sewer line structures or pipe are being installed. The contractor shall make this equipment available for the use of and assist the City inspector in performing grade checks when requested by the inspector. The inspector will make all reasonable attempts to confine requests for assistance in performing grade checks to a time convenient to the contractor.

These checks will be performed to ensure the following:

- A. Proper placement of each structure.
B. Proper installation of initial runs of pipe from a structure.
C. Grade, after an overnight or longer shutdown.
D. Grade, at any other time the inspector has reason to question grade of installation.
E. A grade check performed by the City inspector in no way relieves the contractor for the ultimate responsibility to ensure construction to the plan grade.

Unauthorized Street Excavation

In the event excavation for the street is from 0" to 6" below that called for as the subgrade elevation on the plans, the contractor shall replace this excess excavated material with compacted 304 crushed aggregate as directed and at no extra cost to the city.

ODOT Item 653-Topsoil Furnished and Placed, As Per Plan

In addition to the requirements ODOT CMS Item 653, immediately after placing the top soil and establishment of final grade, the topsoil area shall be raked to remove all lumps and stones one inch and larger, to a depth of at least one inch, then rolled with a light roller to secure smoothness to the lines and grades shown in the contract documents. All topsoil shall be of the highest quality and free of all stones, trash, and other deleterious materials greater than 1/4" Organic content shall be tested by an approved lab and certified to between 10-20% by weight, all topsoil shall be saturated with water and allowed to settle before seeding. Any topsoil disturbance, settlement or erosion which may occur before the completion of the contract shall be repaired to the satisfaction of the Engineer at the contractor's expense.

Conduit End Treatment

Immediately after placement of any conduits, the contractor shall construct the end treatments required by the plans at both the outlet and inlet ends. This shall include headwalls, concrete riprap, rock channel protection, sodding, etc.

Class "C" Concrete

All concrete used on this project shall be Class C concrete or Class "C" option one. Class "C" option two and three are not permitted.

Item Special - Manhole Casting Encasement Construction Notes

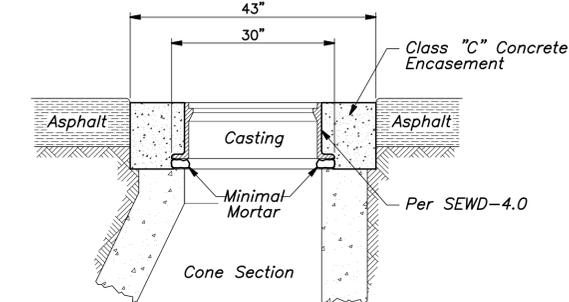
- 1. Core around manhole casing to a minimum diameter of 43 inches. The cut is to be smooth without disturbing existing asphalt. Clean top of manhole and remove loose material ensure a good concrete bond.
2. Install new casting (if specified) or clean existing casting to ensure concrete bonding and reset casting to top of cone with mortar. Use minimal amount of mortar to adjust height to allow concrete to flow under the casting. Casting is to meet existing asphalt grade to 1/4" below. A straight edge test to be performed to ensure proper height.
3. Pour concrete in, level, and strike. Use broom finish in a circular pattern around the casting. Apply cure and seal compound to the concrete finish manufacturer's instructions.
4. Install orange barrel with high intensity diamond grade reflective sheeting to keep traffic off concrete a minimum of 24 hrs. It is the contractor's responsibility to keep traffic off to ensure a quality finish.

Additional Notes

Encasement to be reinforced with two #4 bars spaced equally along the vertical axis. Bar ends to be overlapped 10" Excavate to top of cone, install grade rings as needed (no bricks permitted)

Payment

Payment for the above described item shall be at the contract unit price bid for each manhole casting encasement and shall include all labor, equipment, materials and incidentals necessary to construct this item in place to the satisfaction of the Engineer.



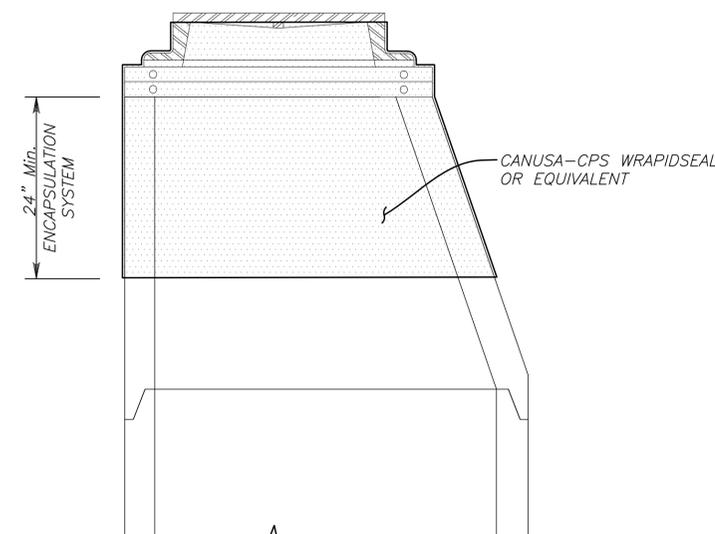
Item Special - Manhole Encapsulation

This item consist of providing and installing per the manufacturer's recommendation a heat shrinkable manhole encapsulation system equivalent to canusa-cps wrapidseal. Equivalent products are subject to approval by the Engineer and the City of Delaware.

CANUSA-CPS WRAPIDSEAL AVAILABLE FROM:
CCI PIPELINE SERVICES
HOUSTON, TEXAS
(281) 350-2100
EMAIL: sales@wrapidseal.com

Payment

Payment for this item shall be at the contract unit price bid for each manhole encapsulation and shall include all labor, equipment, materials and incidentals necessary to construct this item in place to the satisfaction of the Engineer.



EXISTING CONDITIONS

Table listing existing conditions symbols: CENTERLINE SURVEY, CENTERLINE EXIST. DRIVE, EDGE OF PAVEMENT, CURB, SHOULDER, BERM, ASPH. OR CONC. DRIVE, ASPH. OR CONC. PARKING LOT, GRAVEL DRIVE/PARKING LOT, CONC. WALK, BRICK WALK/DRIVE, FENCE, GUARDRAIL, EX. R/W, EX. 12" SFM, EX. 12" SAN, EX. 12"W, EX. 12"G, STORM, SANITARY, WATER, GAS, TELEPHONE (UNDERGROUND), ELECTRIC, CATV, BUILDING, CONC. WALL, STONE WALL, ROCK, TREETLINE, TREES, BUSHES, HEDGE/SHRUB, STUMP, CONC. PAD, WOOD POST, POST/BOLLARD, MAILBOX, FLAGPOLE, PARKING BLOCK, SIGNS, BIRDBATH, HANDRAIL, STEPS.

PROPOSED LAYOUT

Table listing proposed layout symbols: CENTERLINE CONSTRUCTION, CENTERLINE PROP. DRIVE, EDGE OF PAVEMENT, BACK OF CURB, FACE OF CURB, CONC. WALK/ASPH. BIKEPATH, RIGHT-OF-WAY, CONSTRUCTION LIMITS, TEMPORARY EASEMENT, GENERAL EASEMENT, STORM, STM. MH, CATCH BASIN, CURB INLET, WATER VALVE, HYDRANT, MAILBOX, TO BE REMOVED, PROP CONC SIDEWALK, PROP ASPHALT WALK, PROP ASPHALT DRIVE, PROP GRAVEL DRIVE, PROP CONC APPROACH, PROP CONC DRIVE, PROP PAVEMENT PLANING & RESURFACE - ALT BID A.

UTILITY SYMBOLS

Table listing utility symbols: STM. MH, STM. MH (OPEN GRATE), CURB & GUTTER INLET, CURB INLET, SAN. MH, WATER VALVE, DECORATIVE LIGHT POLE, TELE. BOOTH, ELEC. PULLBOX, GROUND LIGHT, GUY ANCHOR, LIGHTING CONTROLLER, FIRE HYDRANT, GAS VALVE, CATCH BASIN, GAS METER, TEL. MH, TEL. PEDESTAL, TELEPHONE POLE, TELEPHONE ELECTRIC POLE, TELEPHONE LIGHT POLE, TELEPHONE ELECTRIC LIGHT POLE, LIGHT POLE.

SURVEY SYMBOLS

Table listing survey symbols: IRON PIN FND./METAL BAR FND., PK NAIL FND., RIGHT OF WAY MON. FND., IRON ROD FND./RR SPIKE FND., BENCHMARK, IRON PIN SET/MAG NAIL SET/PK NAIL SET/RR SPIKE SET/TRVERSE DRILL HOLE.

ABBREVIATIONS

Table listing abbreviations: 1"WS-1" WATER SERVICE, 1"SS-1" SANITARY SERVICE, 1"GS-1" GAS SERVICE, 1"RD-1" ROOF DRAIN, OHE-OVERHEAD ELECTRIC, OHT-OVERHEAD TELEPHONE, UGT-UNDERGROUND TELEPHONE, CATV-CABLE TELEVISION, Ty-TYPE, Cl-CLASS, (PA) PREVIOUSLY ABANDONED, (DND) DO NOT DISTURB, (TBA) TO BE ABANDONED, (TBABO) TO BE ABANDONED, (TBR) TO BE REMOVED, (TBRU) TO BE RELOCATED BY THIS PROJECT, (TBRLO) TO BE RELOCATED (BY OWNER), (APP) AS PER PLAN, (ATG) ADJUST TO GRADE, (RTG) RECONSTRUCT TO GRADE, (COC) CITY OF COLUMBUS CMS, (COLS) CITY OF COLUMBUS CMS.

Job No. 20080386, Sheet 10/74, Date February 2015, Scale NONE, CITY OF DELAWARE, DELAWARE COUNTY, OHIO, STREET IMPROVEMENT PLAN FOR GLENN ROAD / US-36 TO MILL RUN CROSSING IMPROVEMENTS, GENERAL NOTES, REVISIONS, MARK DATE DESCRIPTION, E.M.H.T. ENGINEERS, MECHANICAL AND TITON, INC. ENGINEERS & PLANNERS & SURVEYORS, 5500 New Albany Road, Columbus, OH 43254, Phone: (614) 755-5500, Fax: (614) 755-5501.

ITEM 614, MAINTAINING TRAFFIC, AS PER PLAN

OVERVIEW

CONSTRUCTION ALONG US36/SR37 AND GLENN ROAD SHALL BE COMPLETED IN TWO PHASES AS DETAILED IN THIS PLAN. THE WORK TO BE COMPLETED DURING EACH PHASE IS AS FOLLOWS:

PHASE 1

PHASE 1 WILL CONNECT THE EXISTING MILL RUN CROSSING ROADWAY TO GLENN RD. SOUTH OF 36/37. THIS WORK SHALL BE COMPLETED IN TWO PARTS. PHASE 1A WILL CONSTRUCT MILL RUN CROSSING UP TO AND WITHOUT INFRINGING WITH EXISTING GLENN RD. THIS SHALL BE DONE WITH ALL TRAVEL LANES OPEN ON GLENN RD. PHASE 1B SHALL COMPLETE THE CONNECTION AND RECONSTRUCT GLENN RD FROM MILL RUN CROSSING TO THE SOUTH LIMITS OF CONSTRUCTION. THIS WORK SHALL BE DONE UNDER CLOSURE WITH A DETOUR PROVIDED FOR GLENN RD.

PHASE 2

PHASE 2 WILL COMPLETE THE RECONSTRUCTION AND RELOCATION OF GLENN RD, AND CONSTRUCT ALL PLANNED IMPROVEMENTS FOR 36/37. PHASE 2 HAS BEEN SEPARATED INTO THREE PARTS. PHASE 2A WILL INCLUDE THE REMAINDER OF GLENN RD CONSTRUCTION UP TO BUT NOT INFRINGING UPON 36/37. THIS WORK SHALL BE COMPLETED WITH GLENN RD UNDER CLOSURE (BETWEEN 36/37 AND MILL RUN CROSSING) WITH A DETOUR. THIS SECTION OF GLENN RD SHALL REMAIN CLOSED AND THE PHASE 2 DETOUR SHALL REMAIN FOR THE DURATION OF ALL PARTS OF PHASE 2. PHASE 2B PART 1 WILL CONSTRUCT THE RIGHT TURN LANE INTO THE RELOCATED GLENN RD. THIS PART SHALL BE COMPLETED WHILE MAINTAINING 36/37 TRAFFIC AS DETAILED WITHIN. PHASE 2B PART 2 CONSTRUCTION WILL INCLUDE THE LEFT TURN LANE AND MEDIAN WORK REQUIRED TO COMPLETE THE RELOCATED INTERSECTION. THIS WORK SHALL ALSO BE COMPLETED WHILE MAINTAINING 36/37 TRAFFIC AS DETAILED WITHIN.

GENERAL

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR CONSTRUCTION AND MAINTENANCE OPERATIONS" (CURRENT EDITION), COPIES OF WHICH ARE AVAILABLE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, BUREAU OF TRAFFIC, 1980 WEST BROAD STREET, COLUMBUS, OHIO 43223.

THE ROADWAY SHALL NOT BE OPENED TO TRAFFIC UNTIL PERMANENT TRAFFIC CONTROLS ARE IN PLACE, OR UNTIL TEMPORARY TRAFFIC CONTROLS, APPROVED BY THE ENGINEER, ARE INSTALLED. THE CONTRACTOR ASSUMES ALL LIABILITY FOR THE PREMATURE REMOVAL OF TEMPORARY TRAFFIC CONTROLS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REINSTALLATION AND/OR REPLACEMENT OF ALL PERMANENT TRAFFIC CONTROL DEVICES DAMAGED OR REMOVED DURING THE CONSTRUCTION. PERMANENT TRAFFIC CONTROL THAT IS NO LONGER IN CONFLICT WITH TEMPORARY TRAFFIC CONTROL SHALL BE REPLACED IMMEDIATELY. THE CONTRACTOR SHALL ASSUME ALL LIABILITY FOR MISSING, DAMAGED AND IMPROPERLY PLACED TRAFFIC CONTROL DEVICES.

THE CONTRACTOR SHALL PROVIDE A 24 HOUR CONTACT WHO WILL BE RESPONSIBLE FOR MAINTENANCE OF TRAFFIC FOR THE DURATION OF THE PROJECT.

CONSTRUCTION OPERATIONS SHALL NOT BEGIN UNTIL ALL TEMPORARY TRAFFIC CONTROL DEVICES ARE IN PLACE AND APPROVED BY THE ENGINEER AND THE CITY.

ACCESS TO ALL ADJOINING PROPERTIES TO BE MAINTAINED AT ALL TIMES.

MAINTENANCE OF ALL TRAFFIC CONTROL DEVICES INCLUDING DRUMS, SIGNS, BARRICADES, SIGN BOARDS, DETOUR SIGNAGE, ETC., SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

DRUMS SHALL BE PLACED AS FOLLOWS: 35' C/C ON TANGENTS, 20' C/C ON TAPERS, AND 8' C/C IN RADII.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH CMS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, AS PER PLAN, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUB BASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.

DRUM REQUIREMENTS

IN ADDITION TO THE REQUIREMENTS OF THE PLANS, SPECIFICATION AND PROPOSAL, DRUMS FURNISHED BY THE CONTRACTOR SHALL BE NEW AND UNUSED AT THE TIME OF ARRIVAL ON THE PROJECT. ANY DRUMS BROUGHT ON THE PROJECT, WHICH HAVE PREVIOUSLY BEEN USED ELSEWHERE, WILL NOT BE ACCEPTED.

PAYMENT FOR DRUMS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR MAINTAINING TRAFFIC UNLESS SEPARATELY ITEMIZED.

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEO'S) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF CMS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT)

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP). IN GENERAL, LEOS SHOULD BE POSITIONED AT THE POINT OF LANE RESTRICTION OR ROAD CLOSURE AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH INTERSECTIONS IN WORK ZONES.

WHEN CONSTRUCTION VEHICLES ARE ENTERING/EXITING THE ZONE DIRECTLY FROM/INTO AN OPEN LANE OF TRAFFIC. IF A LANE HAS BEEN CLOSED TO PROVIDE AN ACCELERATION/DECELERATION LANE FOR THE VEHICLE, THE LEO WILL NOT BE REQUIRED.

LEO'S SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

LEO'S SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED. IF THE CONTRACTOR WISHES TO UTILIZE LEO'S FOR FLAGGING AND TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THESE PLANS, THEY MAY DO SO AT THEIR OWN EXPENSE.

THE LEO'S WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEO'S. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEO'S DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. ONCE THE LEO HAS COMPLETED THE DUTIES DESCRIBED ABOVE AND STILL HAS TIME REMAINING ON HIS/HER SHIFT, THE LEO MAY BE ASKED TO PATROL THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) OR BE PLACED AT A LOCATION TO DETER MOTORISTS FROM SPEEDING. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEO'S REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 20 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN

UNDER THIS ITEM OF WORK THE CONTRACTOR SHALL PURCHASE TWO NEW CHANGEABLE MESSAGE SIGNS FOR USE ON THIS PROJECT. THE SIGNS SHALL BE DELIVERED AND IN PLACE A MINIMUM OF 2 WEEKS IN ADVANCE OF THE ROAD CLOSURE. AFTER THE COMPLETION OF THE WORK THE SIGNS SHALL BE REMOVED AND DELIVERED TO THE CITY OF DELAWARE. THIS ITEM SHALL MEET THE FOLLOWING REQUIREMENTS:

THE PORTABLE CHANGEABLE MESSAGE SIGNS SHALL NOT BE USED IN PLACE OF THE "FLASHING ARROW PANELS" DETAILED IN THIS PLAN.

THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE LOCATION, YET PROTECTED FROM TRAFFIC. PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE PLACED ADJACENT TO THE ROADWAY WITHIN THE RIGHT OF WAY. SIGNS SHALL BE LOCATED AS DETAILED IN THIS PLAN AND SHALL BE ON LEVEL SURFACE IN A CLEARLY VISIBLE LOCATION FOR APPROACHING TRAFFIC.

THE SIGNS SHALL MEET ALL REQUIREMENTS ESTABLISHED BY CITY OF DELAWARE OFFICIALS.

THE SIGNS SHALL BE LISTED ON THE OHIO DEPARTMENT OF TRANSPORTATIONS PREQUALIFICATION LIST WITH A MINIMUM RATING OF A CLASS 2 AND NTPPEP CLASS A.

THE DISPLAY SHALL BE L.E.D. (LIGHT EMITTING DIODE) MEETING THE REQUIREMENTS SET FOR BY THE (ITE) INSTITUTE OF TRANSPORTATION ENGINEERS.

THE PORTABLE CHANGEABLE MESSAGE SIGN SHALL HAVE A FULL MATRIX DISPLAY WITH THE ABILITY TO SHOW MULTIPLE LINE FORMATS WITH UP TO SIX MESSAGE PHASES.

THE PRIMARY POWER CHARGING SYSTEM SHALL BE SOLAR WITH AN ONBOARD AUXILIARY AC CHARGER.

THE ORIENTATION OF THE SOLAR PANEL ASSEMBLY SHALL BE FULL ADJUSTABLE TO FACE THE SOUTHERN HEMISPHERE IRRESPECTIVE OF THE ORIENTATION OF THE SIGN.

EACH SIGN SHALL BE TRAILER MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM TO ADJUST THE BRIGHTNESS UNDER VARYING LIGHT CONDITIONS AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL HAVE OPERATING INSTRUCTIONS TO ENABLE ON-SITE OPERATION AND TROUBLESHOOTING. THE PCMS SHALL BE IN PLACE 2 WEEKS PRIOR TO CONSTRUCTION TO ADVISE THE PUBLIC.

THE SIGNS SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PREPROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

THE CONTRACTOR SHALL AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE OFF, FACING AWAY FROM ALL TRAFFIC AND SHALL DISPLAY ONE OR MORE HIGH INTENSITY YELLOW REFLECTIVE SHEETING SURFACES (9-INCH BY 15-INCH MINIMUM SIZE) FACING TRAFFIC.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHANGING MESSAGES WITHIN 2 HOURS FOLLOWING NOTIFICATION FROM THE ENGINEER. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR 24 HOURS PER DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE.

THE PCMS SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF 614.03. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS INCLUDING WEEKENDS.

DURING CONSTRUCTION OPERATIONS THE PCMS SHALL BE OWNED AND MAINTAINED BY THE CONTRACTOR. CHANGE IN OWNERSHIP SHALL OCCUR AT THE COMPLETION OF THE PROJECT. THE PCMS DELIVERED TO THE CITY OF DELAWARE SHALL BE IN LIKE NEW CONDITION, AS DETERMINED BY THE ENGINEER. ANY DAMAGE TO THE UNIT DURING THE CONSTRUCTION OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTORS EXPENSE PRIOR TO THE CHANGE IN OWNERSHIP.

CATALOG CUTS SHALL BE SUBMITTED TO THE CITY OF DELAWARE FOR REVIEW PRIOR TO ORDERING THESE DEVICES.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE BID PER EACH SIGN AND SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE, MAINTENANCE, INCIDENTALS AND DELIVERY TO THE CITY OF DELAWARE.

ITEM SPECIAL - FLASHING ARROW PANEL, AS PER PLAN
UNDER THIS ITEM OF WORK THE CONTRACTOR SHALL PURCHASE TWO NEW FLASHING ARROW PANELS FOR USE ON THIS PROJECT. THE FLASHING ARROW PANELS SHALL BE UTILIZED DURING CONSTRUCTION AS DETAILED IN THIS PLAN. THE FLASHING ARROW PANEL SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR DURING CONSTRUCTION IN ACCORDANCE WITH THE PROVISIONS OF ODOT ITEM 614. ANY FAILURE SHALL NOT RESULT IN THE FLASHING ARROW PANEL BEING OUT OF SERVICE FOR MORE THAN 12 HOURS INCLUDING WEEKENDS. DURING CONSTRUCTION OPERATIONS THE FLASHING ARROW PANEL SHALL BE OWNED AND MAINTAINED BY THE CONTRACTOR. AFTER THE COMPLETION OF THE WORK, THE FLASHING ARROW PANELS SHALL BE REMOVED AND DELIVERED TO THE CITY OF DELAWARE.

THE FLASHING ARROW PANELS SHALL BE "LIKE NEW" AND IN GOOD WORKING ORDER AS DETERMINED BY THE ENGINEER UPON DELIVERY TO THE CITY OF DELAWARE. ANY DAMAGE TO THE EQUIPMENT DURING CONSTRUCTION IS THE CONTRACTORS RESPONSIBILITY AND SHALL BE RESTORED TO "LIKE NEW" CONDITION PRIOR TO DELIVERY. CHANGE IN OWNERSHIP SHALL OCCUR AT COMPLETION OF THE PROJECT.

A FLASHING ARROW PANEL (48"x96" - TYPE C) SHALL BE USED IN LANE CLOSURES IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (CURRENT EDITION).

THE ARROW PANELS SHALL HAVE A 15 LAMP LED DISPLAY.

THE FLASHING ARROW PANEL SHALL HAVE A POSITIVE DRIVE VOLTAGE SYSTEM TO PROVIDE VOLTAGE TO LAMPS ONLY WHEN LIT. IT SHALL HAVE RESETTING DUAL CIRCUIT BREAKERS AND A LOW-VOLTAGE DISCONNECT WITH WARNING INDICATOR.

THE FLASHING ARROW PANEL SHALL BE EQUIPPED WITH A CONTROLLER AND BATTERY LOCATED IN SEPARATE BOXES. THE ALUMINUM BATTERY AND CONTROL BOXES SHALL BE LOCKABLE AND WEATHER RESISTANT.

THE FLASHING ARROW PANELS SHALL BE SOLAR POWERED, INCLUDING A SOLAR POWERED VOLTAGE REGULATOR WITH INDICATOR.

THE PANEL SHALL HAVE AUTOMATIC DIMMING FUNCTIONS AND PROVIDE MULTIPLE DIFFERENT ARROW PATTERN DISPLAYS.

THE ARROW PANEL SHALL BE MOUNTED ON A MIG-WELDED TUBULAR STEEL FRAME WITH LEAF SPRINGS, TWO 15" AUTOMOTIVE TIRES AND TWO HEAVY-DUTY STEEL FENDERS WITH INNER SPLASH GUARDS. THE TRAILER SHALL ALSO HAVE A REMOVABLE TOWBAR AND A SINGLE LOCKING DEVICE TO HOLD PANEL IN PLACE.

CATALOG CUTS SHALL BE SUBMITTED TO THE CITY OF DELAWARE FOR REVIEW PRIOR TO ORDERING THESE DEVICES.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE BID PER EACH SIGN AND SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE, MAINTENANCE, INCIDENTALS AND DELIVERY OF THE UNIT IN GOOD CONDITION TO THE CITY OF DELAWARE.

MAINTENANCE OF TRAFFIC SUMMARY				
SPEC.	ITEM NUMBER	QUANTITY	UNIT	ITEM DESCRIPTION
ODOT	614	-	LUMP	Maintaining Traffic, As Per Plan
ODOT	614	-	LUMP	Detour Signing
ODOT	614	20	HOUR	Law Enforcement Officer with Patrol Car for Assistance
ODOT	614	2	EACH	Portable Changeable Message Signs, As Per Plan
-	SPECIAL	2	EACH	Flashing Arrow Panel, As Per Plan

CITY OF DELAWARE, DELAWARE COUNTY, OHIO
STREET IMPROVEMENT PLAN
FOR
GLENN ROAD / US-36 TO MILL RUN
CROSSING IMPROVEMENTS

MAINTENANCE OF TRAFFIC
GENERAL NOTES



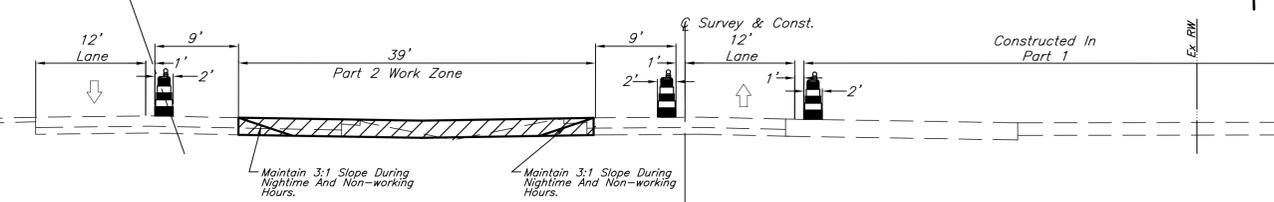
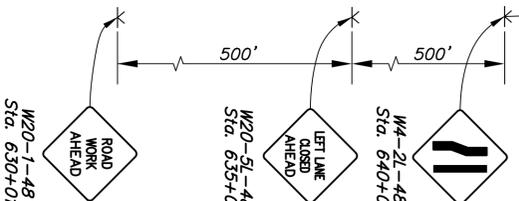
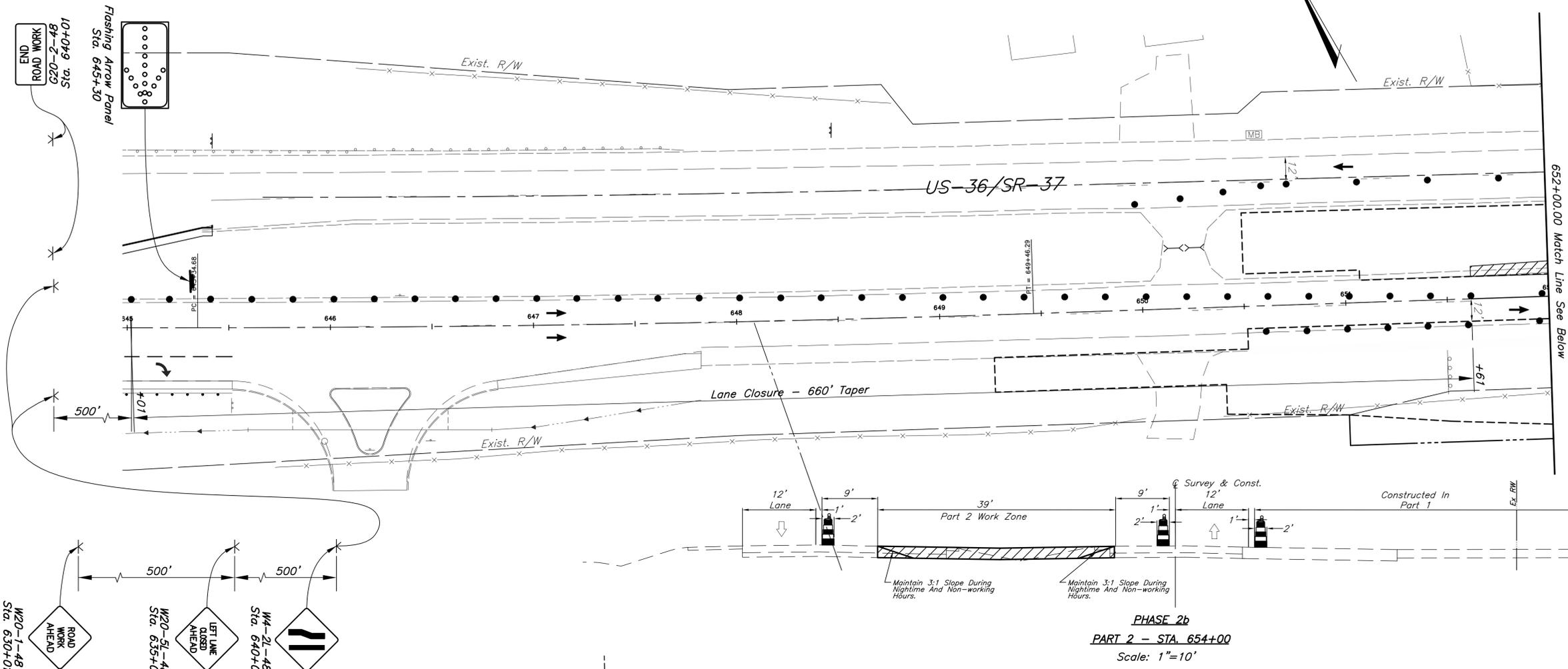
REVISIONS
MARK DATE DESCRIPTION

Job No. 20080386

Date February 2015

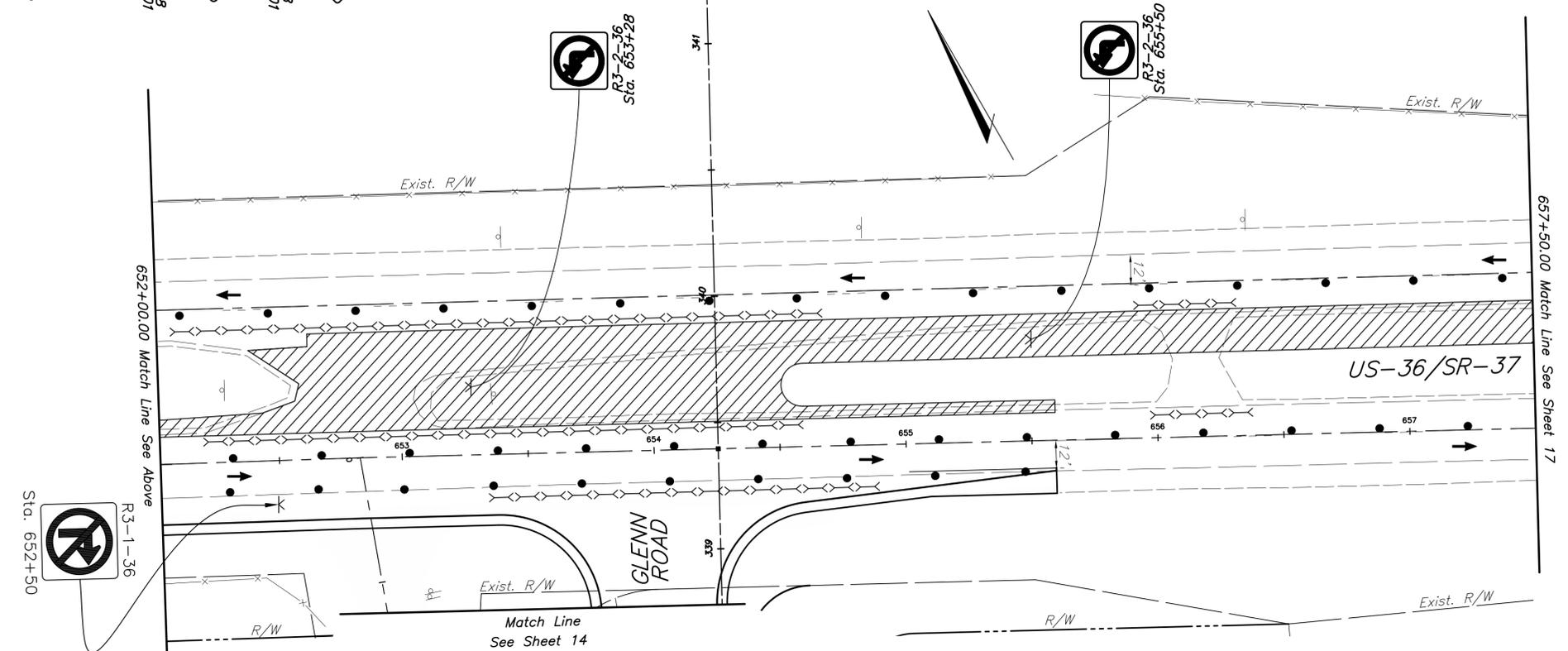
Scale NONE

Sheet 11 / 74



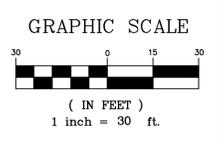
PHASE 2b
PART 2 - STA. 654+00
 Scale: 1"=10'

- Notes:
- 1) See sheet 14 for Glenn Road detour plan.
 - 2) Advanced warning signs shall be placed in a clear visible location, not in conflict with any existing sign, drive, or roadway.



Drum Spacing Chart	
Tangent	35' c/c
Taper	20' c/c
Radii/Closure	8' c/c

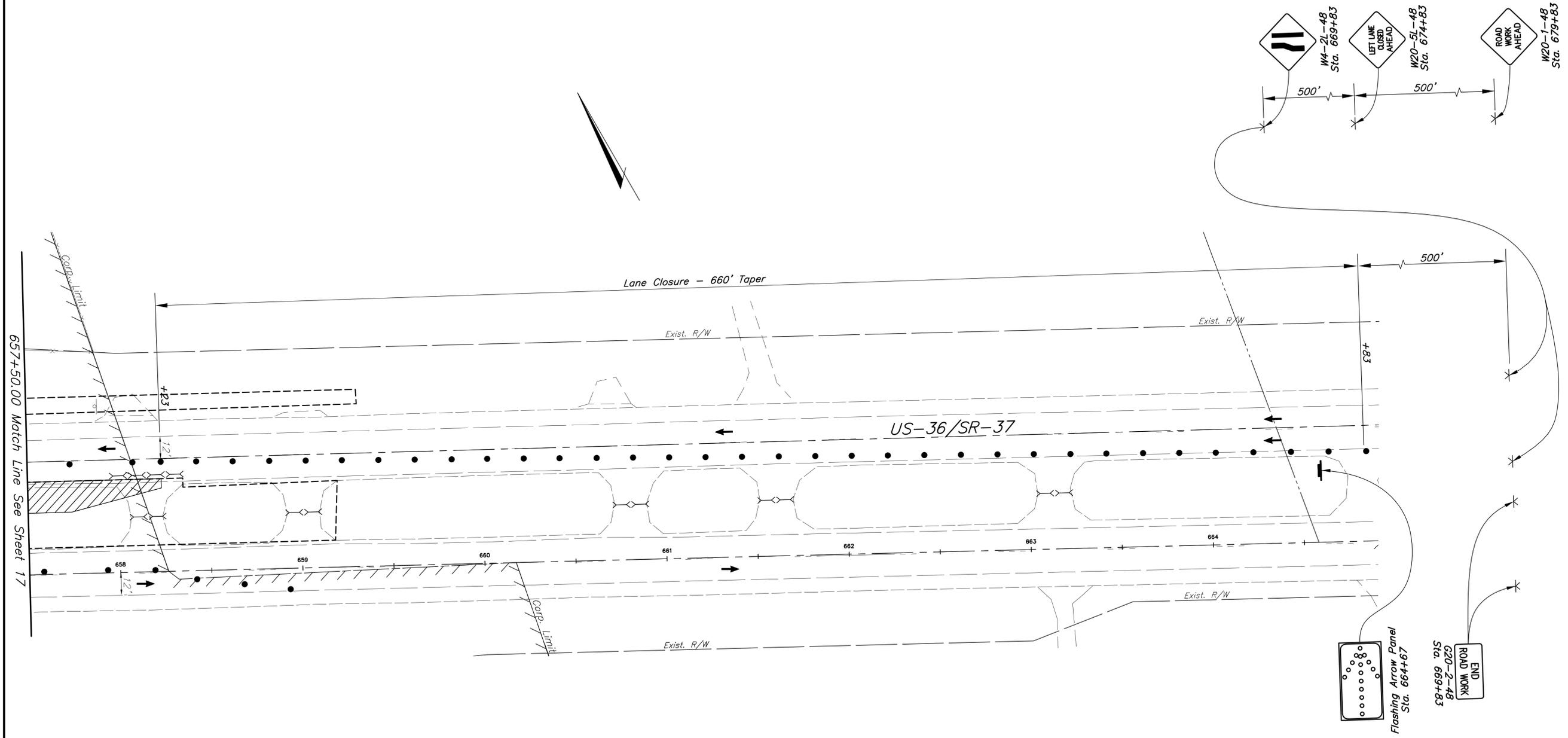
- LEGEND**
- Traffic Drum
 - ▨ Work Area
 - ⊥ Temporary Sign Support
 - ⌵ Type III Barricade



REVISIONS MARK DATE DESCRIPTION		EMHT <small>Ernst, Mechwart, Hombach & Tison, Inc. Engineers • Surveyors • Planners • Scientists 5500 New Albany Road, Columbus, OH 43254 Phone: 614/775-5500 Fax: 614/775-5502</small>	CITY OF DELAWARE, DELAWARE COUNTY, OHIO STREET IMPROVEMENT PLAN FOR GLENN ROAD / US-36 TO MILL RUN CROSSING IMPROVEMENTS
Job No. 20080386	Date February 2015	Scale Horiz: 1" = 30' Sheet 16 / 74	Job No. 20080386

CMHDATA01\PROJECT01\20080386\DWG\TRAFFIC\80386MT7.DWG<017> - 12 XREFS: 80386_XPR, 80386_XER, 80386_XEU, 80386_XRW, 80386_XPR_ULTIMATE, 80386_XPM, 80386_XPM_ULTIMATE, 80386-XZA, 70104XWDEN, 70104XCL-STA, 80386_STA, 80386_XCL - LAST SAVED BY JHOEKSTRA [7/2/2009 11:53:02 AM] - PLOTTED BY JHOEKSTRA [7/8/2009 9:24:59 AM]

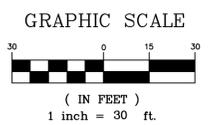
- Notes:
- 1) See sheet 14 for Glenn Road detour plan.
 - 2) Advanced warning signs shall be placed in a clear visible location, not in conflict with any existing sign, drive, or roadway.



Tangent	35' c/c
Taper	20' c/c
Radii/Closure	8' c/c

LEGEND

- Traffic Drum
- ▨ Work Area
- ⊥ Temporary Sign Support
- ⊥ Type III Barricade



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MARK	DATE	DESCRIPTION

EMHT
 Ernie, Mechwart, Hombach & Tison, Inc.
 Engineers • Surveyors • Planners • Scientists
 5500 New Albany Road, Columbus, OH 43254
 Phone: 614/752-5500 Fax: 614/752-5502

**MAINTENANCE OF TRAFFIC PLAN
 PART 2
 PHASE 2b**

**CITY OF DELAWARE, DELAWARE COUNTY, OHIO
 STREET IMPROVEMENT PLAN
 FOR
 GLENN ROAD / US-36 TO MILL RUN
 CROSSING IMPROVEMENTS**

Date	February 2015	Job No.	20080386
Scale	Horizontal: 1" = 30'	Sheet	17 / 74

SPEC.	ITEM NO.	ESTIMATED QUANTITY	UNIT	DESCRIPTION	SEE SHEET NO.
Supplemental Traffic Control					
ODOT	630	8	Each	Removal of Ground Mounted Support and Disposal	
ODOT	630	10	Each	Removal of Ground Mounted Sign and Storage	
ODOT	630	112	Ft	Ground Mounted Support, No. 3 Post	
ODOT	630	58	Sq Ft	Sign, Flat Sheet, Type G	
ODOT	630	150	Ft	Ground Mounted Structural Beam Support, W6X9	
ODOT	630	8	Each	Breakaway Structural Beam Connection	
ODOT	630	176	Sq Ft	Sign, Ground Mounted Extrusheet	
ODOT	630	8	Each	Ground Mounted Structural Beam Support Foundation	
Traffic Signal					
ODOT	625	127	Ft	Conduit Encased, 2", 725.051, As Per Plan	64
ODOT	625	530	Ft	Conduit, 2", 725.051, As Per Plan	64
ODOT	625	28	Ft	Conduit, 3", 725.051, As Per Plan	64
ODOT	625	1,148	Ft	Conduit, 3", 725.04, Jacked or Drilled	64
ODOT	625	4	Each	Pull Box, 725.08, 24", As Per Plan	64
ODOT	625	366	Ft	Trench, As Per Plan	64
ODOT	625	6	Each	Ground Rod	
ODOT	625	3	Each	Bracket Arm, As Per Plan	64
ODOT	625	3	Each	Luminaire Conventional, 250Watt, HPS, 120 Volt, Type III, As Per Plan	64
ODOT	625	3	Each	Connection, Fused Pull-Apart, Type II	
ODOT	625	3	Each	Connection, Unfused Pull-Apart, Type III	
ODOT	625	766	Ft	No. 8 AWG, 600 Volt Distribution Cable (Combination Lighting)	
ODOT	625	783	Ft	No. 4 AWG, 600 Volt Distribution Cable, As Per Plan (Grounding and Bonding)	64
ODOT	625	390	Ft	Pole and Bracket Cable, No. 10 AWG, 600 Volt	
ODOT	630	6	Each	Sign Hanger Assembly, Mast Arm Mounted, As Per Plan	64
ODOT	630	4	Each	Sign Support Assembly, Pole Mounted, As Per Plan	64
ODOT	630	16	Sq Ft	Sign, Flat Sheet, As Per Plan	64
ODOT	630	3	Each	Sign, Single-Faced, Street Name, As Per Plan	68
ODOT	632	3	Each	Vehicular Signal Head, (LED), 3-Section, 12" Lens, 1-Way, As Per Plan	65
ODOT	632	3	Each	Vehicular Signal Head, (LED), 5-Section, 12" Lens, 1-Way, As Per Plan	65
ODOT	632	2	Each	Pedestrian Signal Head, As Per Plan	65
ODOT	632	6	Each	Covering Vehicular Signal Head, As Per Plan	65
ODOT	632	2	Each	Covering Pedestrian Signal Head, As Per Plan	65
ODOT	632	2	Each	Combination Signal Support, Type TC-81.21, Design No. 13, As Per Plan	65
ODOT	632	1	Each	Combination Signal Support, Type TC-81.21, Design No. 14, As Per Plan	65
ODOT	632	3	Each	Signal Support Foundation	
ODOT	632	1	Each	Pedestal, Transformer Base, 10.7', As Per Plan	65
ODOT	632	639	Ft	Signal Cable, 9 Conductor, No. 14 AWG	
ODOT	632	647	Ft	Signal Cable, 7 Conductor, No. 14 AWG	
ODOT	632	67	Ft	Signal Cable, 3 Conductor, No. 14 AWG	
ODOT	632	152	Ft	Power Cable, 3 Conductor, No. 6 AWG, As Per Plan	64
ODOT	632	1	Each	Power Service, As Per Plan	64
ODOT	632	1	Each	Removal of Unwarranted Traffic Signal, As Per Plan	66
ODOT	633	1	Each	Emergency Vehicle Preemption, As Per Plan	65
ODOT	633	1	Each	Controller Unit, Type TS-2/A2 with Cabinet, Type TS-2, As Per Plan	65
ODOT	633	1	Each	Cabinet Foundation, As Per Plan	70
ODOT	633	1	Each	Controller Work Pad, As Per Plan	70
ODOT	633	1	Each	Uninterruptable Power Supply, As Per Plan	65
ODOT	633	2	Each	Advanced/Dilemma Zone Detection System, As Per Plan	66
ODOT	633	2	Each	Stop Bar Detection Radar, As Per Plan	66
ODOT	815	2	Each	Spread Spectrum Radio Interconnect System, As Per Plan	66
Lighting					
ODOT	625	20	Each	Connection, Fused Pull Apart	
ODOT	625	3	Each	Connection, Unfused Permanent	
ODOT	625	10	Each	Light Pole, As Per Plan	71
ODOT	625	10	Each	Light Pole Foundation, 6' (HL-20.11)	
ODOT	625	4488	Ft	No. 4 AWG 600 Volt Distribution Cable	
ODOT	625	400	Ft	No. 10 AWG Pole and Bracket Cable	
ODOT	625	1156	Ft	Conduit, 2", 725.051	
ODOT	625	464	Ft	Conduit, 2", Concrete Encased	
ODOT	625	20	Each	Luminaire, 240 Volt, As Per Plan	71
ODOT	625	1578	Ft	Trench	
ODOT	625	10	Each	Ground Rod	
ODOT	625	1	Each	Power Service, As Per Plan	71
ODOT	625	7	Each	Pull Box, 725.08, 24"	
Miscellaneous					
ODOT	619	12	Month	Field Office, Type B	
ODOT	623	1	Lump	Construction Layout Stakes, As Per Plan	
ODOT	624	1	Lump	Mobilization	

ODOT references 2013 Ohio Dept. of Transportation Construction and Material Specifications.
 COLS references 2012 City of Columbus Construction and Material Specifications.
 COD references City of Delaware.
 * Denotes Contingency

Job No.	20080386	Date	February 2015	Sheet	19 / 74
Scale	None	CITY OF DELAWARE, DELAWARE COUNTY, OHIO STREET IMPROVEMENT PLAN FOR GLENN ROAD / US-36 TO MILL RUN CROSSING IMPROVEMENTS			
REVISIONS	ESTIMATED QUANTITIES				
MARK	DATE	DESCRIPTION			
I					
EMHT Earth, Mechanical, Horizontal & Tilt, Inc. Engineers • Surveyors • Planners • Scientists 5500 New Albany Road, Columbus, OH 43254 Phone: 614/752-5500 Fax: 614/752-5501					

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

The following estimated quantities are to be placed by the Contractor with the Engineer's concurrence for temporary erosion and sediment control measures:
Item 207, Inlet Protection (Beaver Dam) 3 EACH
Item 207, Inlet Protection (Dandy Bag) 6 EACH
Item 207, Perimeter Filter Fabric Fence 250 FT
Item 207, Filter Fabric Ditch Check 400 LF
Item 207, Sediment Trap No. 1, As Per Plan 1 Lump Sum
Item 207, Sediment Trap No. 2, As Per Plan 1 Lump Sum
Item 207, Sediment Trap No. 3, As Per Plan 1 Lump Sum
Item 659, Construction Seeding and Mulching, As Per Plan 1700 SQ YD
Item 670, Ditch Erosion Protection 1500 SQ YD
Item Special, Concrete Washout Area 1 Lump Sum

EROSION AND SEDIMENT CONTROL NARRATIVE

Matt Weber, P.E.
City of Delaware
20 East William Street
Delaware, OH 43015
(740) 203-1721

EMH&T, Inc.
5500 New Albany Road
Columbus, OH 43054
Tel: (614) 775-4500
Fax: (614) 775 4800
emht.com

Project Description: This project consists of the reconstruction and relocation of 0.4 mile of Glenn Road including 0.15 mile of turn lane and intersection improvements along US-36/SR-37. This project will include a mast arm traffic signal installation, addition of turn lanes, Mill Run Crossing side street connection improvements, storm sewer, culverts, open ditches and necessary traffic control devices.

Site Acreage: 12.40 Ac.

Disturbed Acreage: 6.98 Ac.

Site Vegetation: Predominately agriculture

Adjacent Areas: Pennsylvania Railroad to the south and existing development and agriculture fields to the east and west. US-36/SR-37 to the north.

Soils: According to the Delaware County Soil Survey, soil on site consists of Blount Silt loam, Glynwood Silt Loam, Pewamo Silty Clay Loam.

Permanent Stabilization: The site will be stabilized by the establishment of grass.

Erosion and Sediment Control Measures: Filter fabric fence will be installed at areas of sheet flow as shown on plan sheet No. 20. Temporary and permanent seeding will be utilized to prevent rock erosion. Sediment traps and ditch checks will be installed in roadway ditches. Inlet protection will be provided at all storm sewer strictures.

Receiving Waters: Stormwater runoff associated with the site is tributary to Mill Run and an existing storm culvert under Glenn Road to an Unnamed stream tributary to Mill Run. The project is located within the Olentangy River watershed.

Storm Water Quality: Water quality volume is provided within the vegetated biofilters and the off site stormwater management basin associated with the Glennwood Commons project. A copy of the SWPPP, the NPDES permit & the Ohio EPA NOI must be kept on site and clearly displayed at all times.

SEQUENCE OF CONSTRUCTION:

1. Establish stabilized construction drives necessary to access the site and a concrete washout area.
2. Install perimeter sediment fence and inlet protection on existing storm sewer inlets.
3. Clear areas necessary to excavate the sediment traps and drainage ditches.
4. Install the ditch checks within the ditch associated with sediment traps.
5. Clear the remainder of the site and establish temporary soil stockpiles as needed.
6. Box out areas for proposed streets, place fill and bring site to grade. Stabilize disturbed areas utilizing temporary and permanent seeding procedures.
7. Install perimeter sediment fence around the stockpile area and seed if the areas are to remain idle for more than 21 days.
8. Install utilities including storm sewer inlet protection and ditch checks.
9. Construct the proposed street.

10. Stabilize the disturbed areas according to the temporary and permanent seeding requirements, including ditch erosion protection.

11. Remove the temporary sediment controls upon the establishment of permanent vegetation and approval of the City of Delaware.

12. Complete the construction of the biofilters upon removal of the temporary sediment traps.

INLET PROTECTION

The Contractor is responsible to keep all storm sewer inlets protected from excessive amounts of sediments using adequate filtering devices as approved by the city.

EROSION & SEDIMENT CONTROL

The Contractor shall provide sediment control at all points where storm water runoff leaves the project including waterways, overland sheet flow, and storm sewers. Erosion and sediment control shall be provided as per the requirements of the City of Delaware and the Standards and Specifications of the "Rainwater and Land Development" Manual of the ODNR.

Erosion control measures are to be installed per NPDES permit regulations or as directed by the City Engineer, and are to be maintained until such time that they are no longer required by the permit and the City Engineer. Cost for erosion and sedimentation control shall be included in the price bid for various erosion and sedimentation control items.

All land disturbing activities shall be subject to inspection and site investigation by the City of Delaware and/or the Ohio EPA. Failure to comply with these regulations is subject to legal enforcement action.

The contractor is responsible to notify the City of Delaware 48 hours prior to commencement of initial site and land disturbance on an site of two or more acres. This includes site clearing, grubbing, and any earth moving. Primary erosion and sediment control practices are mandated by regulations to be in place from the beginning of the construction activity.

SOIL STOCKPILES

The Contractor shall be responsible for keeping all soil stockpiles, including trench excavation stockpiles, protected from erosion. The areas surrounding the stockpiles are to be protected from sediment with the use of perimeter control devices such as earth or straw bale devices or silt fences. These perimeter control devices shall be maintained for the duration of the project.

GENERAL NOTES

Schedule: The contractor shall provided a schedule of operations to the City of Delaware. Sedimentation and erosion control features shall be placed in accordance with this schedule.

CONTRACTOR RESPONSIBILITY: The contractor is responsible for providing erosion and sediment controls as detailed herein and for providing proper maintenance and inspection of such controls. Details shown on the plan shall be considered a minimum. Deviations from the plan are acceptable upon approval by the City of Delaware. Additional pr alternative details may be found in the ODNR manual "Rainwater and Land Development."

MAINTENANCE NOTES

The owner's representative will inspect all erosion and sedimentation control measures weekly and within 24 hours after each rainfall event to assure that the measures are functioning properly. The Contractor shall keep inspection reports, copies of which shall be provided to the City of Delaware or Ohio EPA upon request.

The Contractor must maintain a document signed by all subcontractors involved in the SWPPP implementation. The document must certify that the subcontractor(s) has read and understands the SWPPP. The Contractor shall provide the City of Delaware with a copy of this document.

Construction Road/Construction Entrance: Both temporary and permanent roads and parking areas may require periodic top dressing with new gravel. Seeded areas adjacent to the roads and parking areas should be checked periodically to ensure that a vigorous stand of vegetation is maintained. Roadside ditches and other drainage structures should be checked regularly to ensure that they do not become clogged with silt or other debris.

Filter Fabric Fence: It may become necessary to remove portions of the barrier during construction to facilitate the grading operations in certain areas. However, the barrier shall be in place in the evening or during any inclement weather. Filter fabric fences and filter barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately. Sediment that is collected will be distributed on the protected portion of the site and stabilized. All stockpiles of earth and topsoil will be protected with

temporary seeding or other means to prevent erosion. 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 is still necessary, the fabric shall be replaced promptly.

Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half (1/2) the height of the barrier.

Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform with the existing grade, prepared and seeded.

Inlet Protection:

All storm sewer inlets shall be protected by sediment traps (inlet protection), which will be maintained and modified as required as construction progresses. The structure shall be inspected after each rainfall and repairs made as needed. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one-half (1/2) the design of the trap. Removed sediment shall be deposited in a suitable area in such a manner that it will not erode. Any sediment blocking drainage at inlets that creates standing water on roadways and/or driveways shall be removed immediately. Inlet protection structures shall be removed and the area stabilized when the remaining drainage area has been properly stabilized.

GENERAL LAND CONSERVATION NOTES

All structural erosion and sediment control practices shall be placed prior to or as the first step in grading for all sites.

Permanent or temporary soil stabilization shall be applied according to the following Ohio EPA criteria:

Permanent stabilization

Areas that will be dormant for more than a year. Within 7 days of the most recent disturbance. Areas within 50 ft of a stream and at final grade. Within 2 days of reaching final grade. Any other areas at final grade. Within 7 days of reaching final grade.

Temporary stabilization

Areas within 50 ft of a stream and not at final grade. Within 2 days of the most recent disturbance if the area will remain idle for more than 21 days.

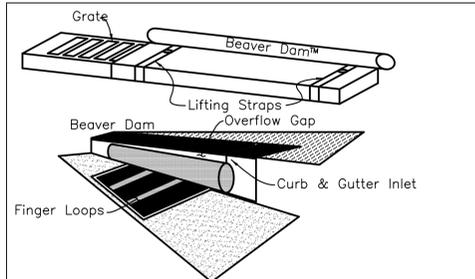
Any disturbed areas that will be dormant for more than 21 days but less than 1 year, and not within 50 ft of a stream. Within 7 days of the most recent disturbance within the area. Disturbed areas that will be idle over winter shall be stabilized prior to the onset of winter weather.

All storm sewer, sanitary sewer, water main and service trenches shall be seeded and mulched within 14 days after backfill if installation is through stabilized areas. No more than 250 feet of trench will be open at any one time.

Electrical power, telephone, cable television and gas supply trenches shall be compacted, seeded and mulched within 14 days after backfill if installation is through stabilized areas.

All temporary diversions, sediment basin embankments and earth stockpiles shall be seeded and mulched for temporary vegetative cover within 7 days after grading.

Any disturbed area not stabilized with seeding, sodding, paving or built upon by November 1st, or areas disturbed after that date, shall be mulched immediately with hydro mulch at the rate of one (1) ton per acre and



Installation: Stand grate on end. Slide the Beaver Dam Bag on with Dam on top of the grate. Pull all excess down. Lay unit on its side. Carefully tuck flap in. Press Velcro strips together. Install the unit making sure front edge of grate is inserted in frame first then lower back into place. Press Velcro dots together which are located under lifting straps. This insures straps remain flush with gutter.

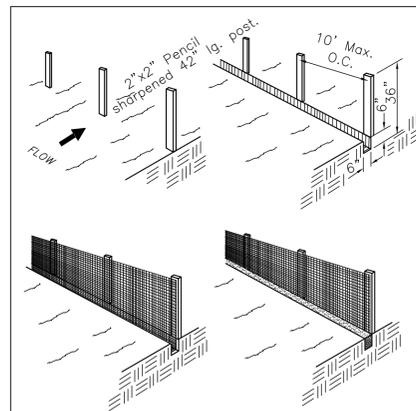
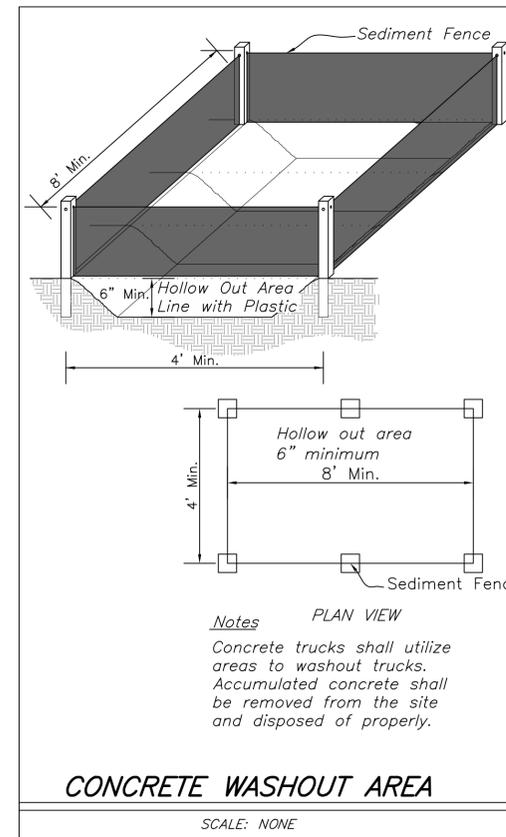
Maintenance: With a stiff bristle broom sweep silt and other debris off surface after each event.

THE BEAVER DAM

SCALE: NONE
For Structures: 1, Ex1, Ex2

over-seeded by April 15th.

At the completion of construction, all denuded areas shall be stabilized and temporary sedimentation & erosion controls shall be removed once the site has been stabilized.



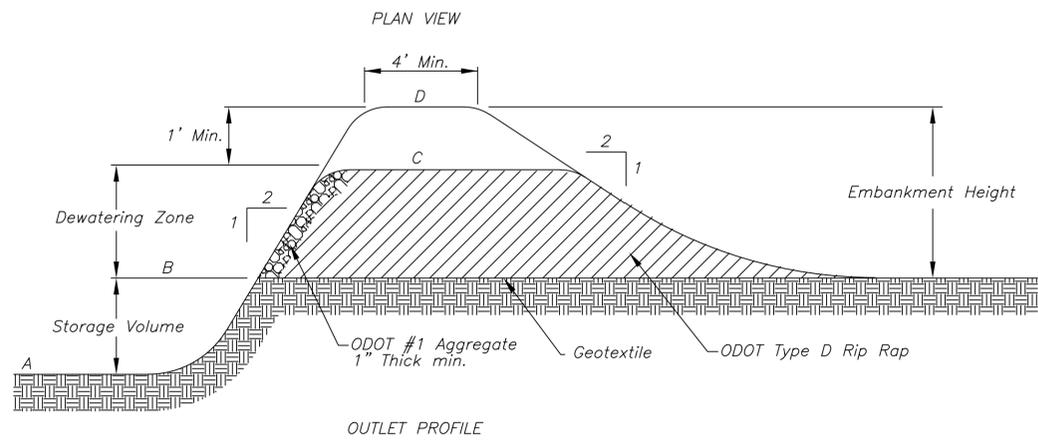
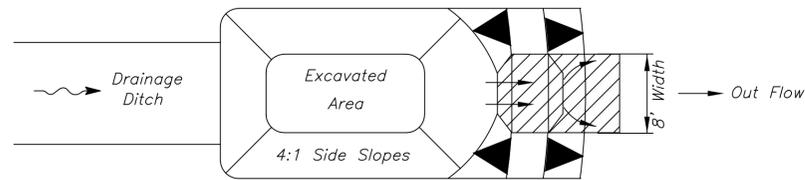
SEDIMENT FENCE DETAIL
SCALE: NONE

Maintenance: Sediment fences and filter barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately. Should the fabric on a sediment fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform with the existing grade, prepared and seeded.

Sediment Fence: 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.

1. The height of a sediment fence shall not exceed 36-inches (higher fences may impound volumes of water sufficient to cause failure of the structure).
2. 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 a support post, with a minimum of a 6 inch overlap, and securely sealed.
3. Posts shall be spaced a maximum of 10 feet apart at the barrier location and driven securely into the ground (minimum of 16 inches). When extra strength fabric is used without the wire support fence, post spacing shall not exceed 6 feet.
4. A trench shall be excavated approximately 6 inches wide and 6 inches deep along the line of posts and upslope from the barrier.
5. 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 into the trench a minimum of 2-inches and shall not extend more than 36-inches above the original ground surface.
6. The standard strength 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.
7. 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 No. 6 applying.
8. The trench shall be backfilled and soil compacted over the filter fabric.
9. Sediment fences shall be removed when they have served their useful purpose, but not before the upslope area has been permanently stabilized.

MARK	DATE	DESCRIPTION	REVISIONS	CITY OF DELAWARE, DELAWARE COUNTY, OHIO STREET IMPROVEMENT PLAN FOR GLENN ROAD / US-36 TO MILL RUN CROSSING IMPROVEMENTS	Date	February 2015	Job No.	20080386	Sheet	21 / 74
					Scale	NO SCALE				



Trap	Drainage Area	Disturbed Area	Required Sediment Storage Volume	Provided Sediment Storage Volume	Required Dewatering Zone	Provided Dewatering Zone	A	B	C	D
1	2.35 Ac	0.85 Ac	31.5 Cy	31.9 Cy	157.5 Cy	167.0 Cy	935.0	936.5	939.0	940.0
2	1.73 Ac	1.40 Ac	51.8 Cy	52.0 Cy	115.9 Cy	230.0 Cy	935.0	936.5	939.0	940.0
3	0.7 Ac	0.35 Ac	13.0 Cy	16.0 Cy	47.0 Cy	49.0 Cy	937.0	939.0	940.0	941

1. Traps should be constructed and operational prior to upslope land disturbance.
2. Area under embankment should be cleared of vegetation.
3. Embankment should be constructed with fill material free from vegetation and oversized stone. Embankment should be compacted with a maximum height of 5 feet above the surrounding ground.
4. Temporary seed and mulch any area of the trap that will not be submerged.
5. Temporary diversions should direct runoff to trap.
6. Accumulated sediment should be removed when it has filled one half of the traps original depth.
7. The trap shall be removed and permanently seeded upon drainage area stabilization.

SEDIMENT TRAP
SCALE: NONE

POST CONSTRUCTION WATER QUALITY CALCULATIONS

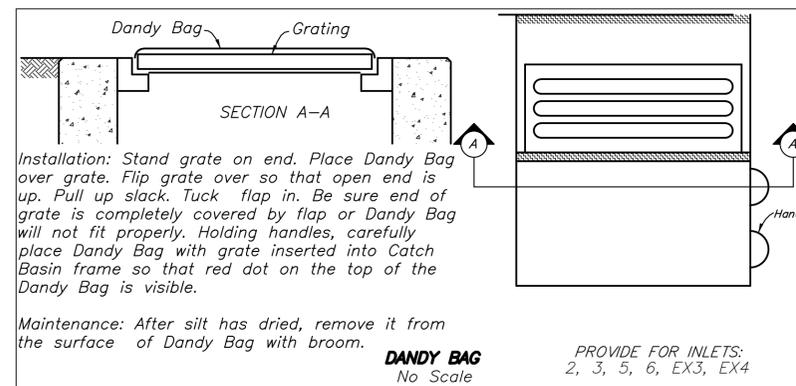
VEGETATED BIOFILTER
 $EBW = 5.4 A^{0.356}$
 EBW = ENHANCED BANK FULL WIDTH (FEET)
 A = TOTAL CONTRIBUTING DRAINAGE (ACRES)

BIOFILTER	A	EBW
1	2.384	7.5
2	2.098	7
3	0.448	4
4	0.318	4
5	0.487	4

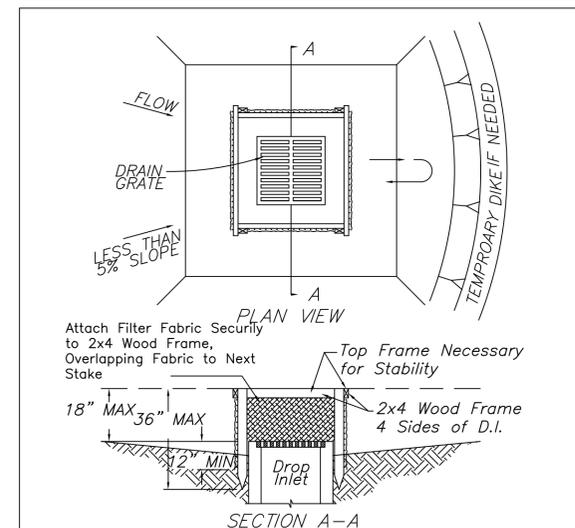
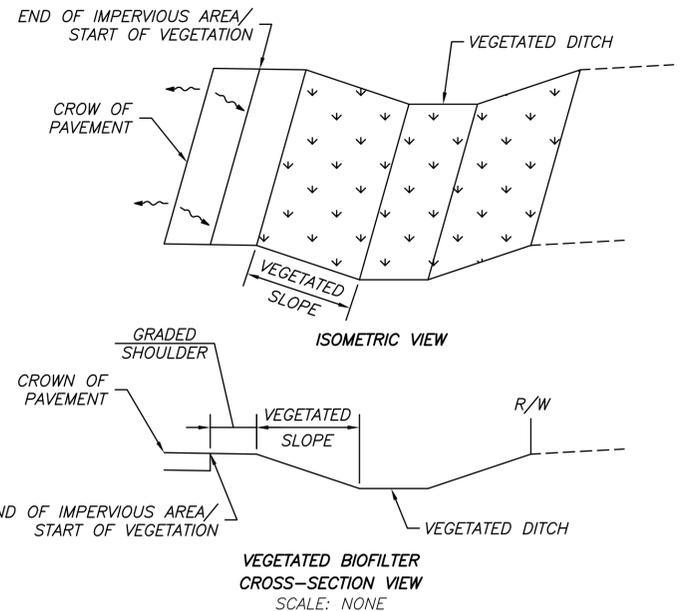
OFF SITE WATER QUALITY BASIN
 GLENNWOOD COMMONS BASIN 001
 $WQv = CPA/12$
 WQv = WATER QUALITY VOLUME
 C = COEFFICIENT
 P = 0.75"
 A = DRAINAGE ACRES

A	C	WQv
67.72 Ac	0.66	2.799 Ac-Ft
39.00 Ac	0.45	1.095 Ac-Ft
30.70 Ac	0.20	0.384 Ac-Ft

$WQv = 4.277 \text{ Ac-Ft (75\% WET BASIN)} = 3.208 \text{ Ac-Ft}$
 $WQv \text{ DRAWDOWN} > 75 \text{ HOURS}$



ELEVATION VIEW OF FLAT BOTTOM DITCH
SCALE: NONE



- Drop Inlet Sediment Barriers are to be used for
1. Small, Nearly Level Drainage Areas. (Less Than 5%)
 2. Use 2"x4" Wood or Equivalent Metal Stakes, 3' Minimum Length.
 3. Install 2"x4" Wood Top Frame to Insure Stability.
 4. The Top of the Frame (Ponding Height) must be well Below the Ground Elevation Downslope to Prevent Runoff from bypassing the Inlet. A Temporary Dike may be Necessary on the Downslope Side of the Structure.

(May be used as an alternate catch basin protection)

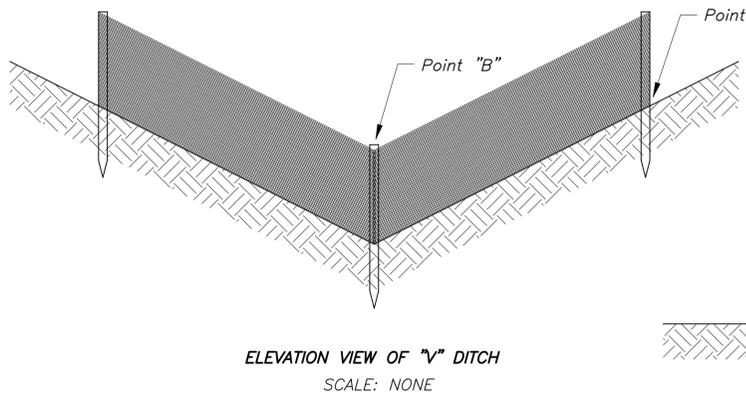
NOTES

FILTER FABRIC DITCH CHECKS:

- MATERIALS:** Furnish filter fabric ditch checks consisting of the following materials:
1. 30" wide filter fabric with sound wood supports with maximum on-center spacing of 10'. Use filter fabric conforming to 712.09 Type C.
 2. A vertically driven "2x4" stake the center of the ditch.

CONSTRUCTION: Trench the filter fabric fence as detailed for PERIMETER FILTER FABRIC FENCE. Place a vertical "2x4" stake in the center of the ditch with the top level to the top of the fence and at least 6" below the bottom of the ditch.

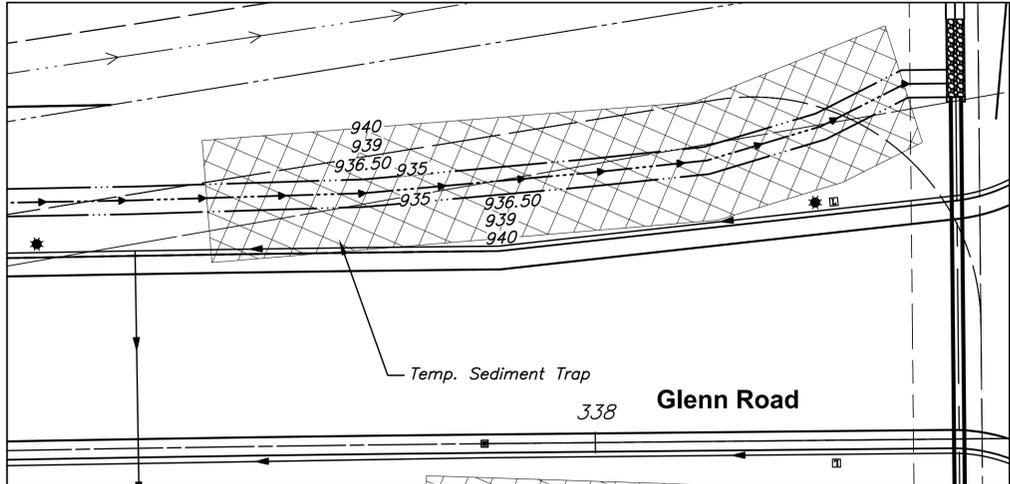
PAYMENT: The City of Delaware will pay for the accepted quantities at the contract prices in feet as follows:
 Item 207 - Filter Fabric Ditch Check.



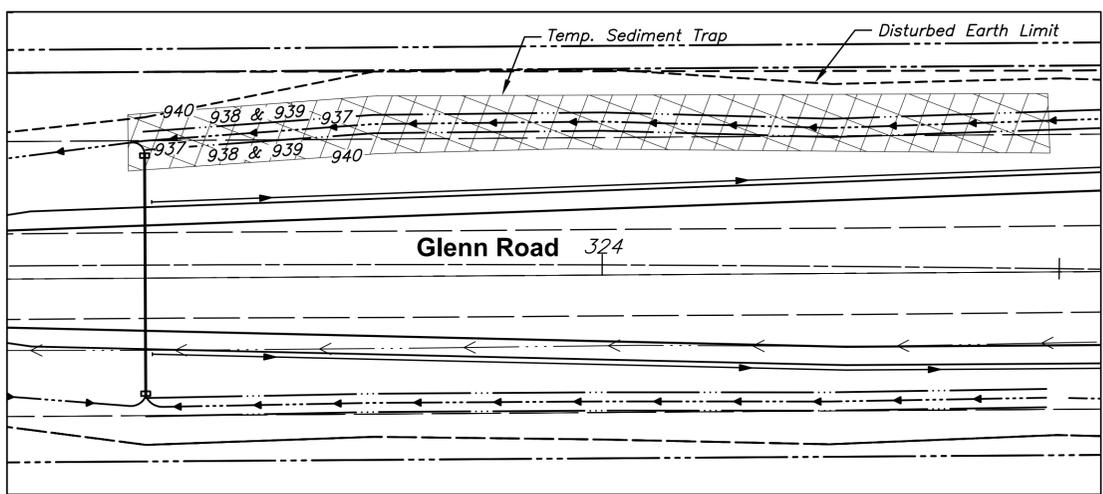
SECTION A-A
SIDE VIEW OF FLAT BOTTOM AND "V" DITCH
SCALE: NONE

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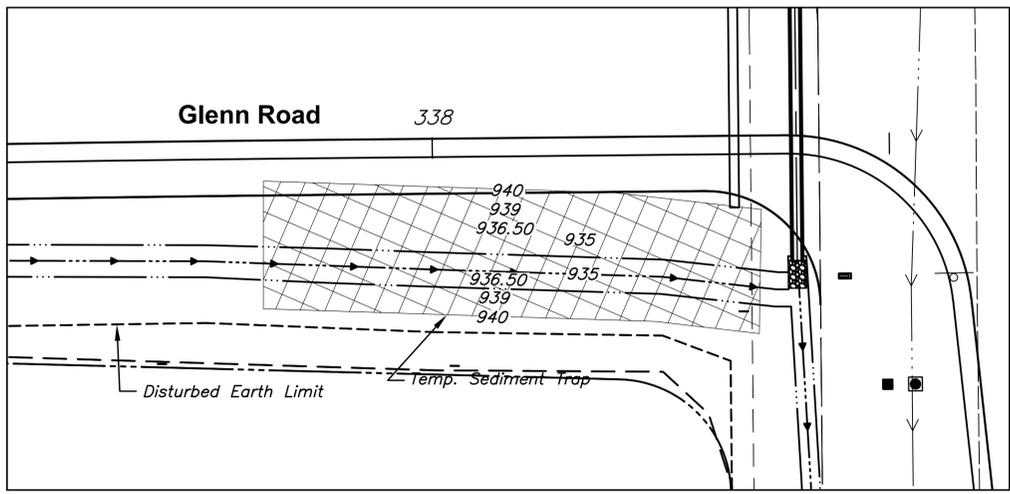
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TEMPORARY SEDIMENT TRAP No. 2, AS PER PLAN
SCALE: 1" = 20'



TEMPORARY SEDIMENT TRAP No. 3, AS PER PLAN
SCALE: 1" = 20'



TEMPORARY SEDIMENT TRAP No. 1, AS PER PLAN
SCALE: 1" = 20'

SEDIMENT TRAP AREAS	
1	2,997 Sq. Ft. = 0.07 Ac.
2	4,113 Sq. Ft. = 0.09 Ac.
3	2,460 Sq. Ft. = 0.06 Ac.

Sediment Trap No. 1, As Per Plan includes, but is not limited to, the following estimated quantities:

ODOT 203	199	Cu. Yd.	Excavation, As Per Plan
ODOT 203	1	L. Sum	Sediment Removal
COLS 207	300	Foot	Construction Fence
COLS 207	1	Cu. Yd.	Misc.: #1 Aggregate (CMS-703)
ODOT 659	333	Sq. Yd.	Seeding & Mulching
ODOT 659	1	Tons	Commercial Fertilizer
ODOT 659	1	Acre	Lime
ODOT 659	3	M. Gal.	Water
ODOT 601	5	Cu. Yd.	Rock Channel Protection, Type D with Filter

Sediment Trap No. 2, As Per Plan includes, but is not limited to, the following estimated quantities:

ODOT 203	285	Cu. Yd.	Excavation, As Per Plan
ODOT 203	1	L. Sum	Sediment Removal
COLS 207	370	Foot	Construction Fence
COLS 207	1	Cu. Yd.	Misc.: #1 Aggregate (CMS-703)
ODOT 659	460	Sq. Yd.	Seeding & Mulching
ODOT 659	1	Tons	Commercial Fertilizer
ODOT 659	1	Acre	Lime
ODOT 659	3	M. Gal.	Water
ODOT 601	5	Cu. Yd.	Rock Channel Protection, Type D with Filter

Sediment Trap No. 3, As Per Plan includes, but is not limited to, the following estimated quantities:

ODOT 203	65	Cu. Yd.	Excavation, As Per Plan
ODOT 203	1	L. Sum	Sediment Removal
COLS 207	430	Foot	Construction Fence
COLS 207	1	Cu. Yd.	Misc.: #1 Aggregate (CMS-703)
ODOT 659	275	Sq. Yd.	Seeding & Mulching
ODOT 659	1	Tons	Commercial Fertilizer
ODOT 659	1	Acre	Lime
ODOT 659	4	M. Gal.	Water
ODOT 601	5	Cu. Yd.	Rock Channel Protection, Type D with Filter

Item 207 – SEDIMENT TRAP, No.1, 2 & 3, AS PER PLAN
 Unless otherwise quantified on the plan, this item shall include all items necessary to construct, operate, maintain, and remove Sediment Traps at the locations detailed on these plans, including, but not limited to, the estimated quantities provided on this sheet. Estimated quantities have been provided on this sheet for informational purposes only.

Traps should be constructed and operational prior to upslope land disturbance with the storage volume of 67 cubic yards per drainage acre, 40% of which volume shall be available below the outlet pipe elevation.

Construct Item 207 – Construction Fence around the perimeter of the Sediment Trap.

All pipes and structures shall be kept free of sediment accumulation.

Remove deposited sediment when the sediment elevation reaches the outlet elevation of the trap per COLS Item 207.04.

Seed and Mulch any area of the trap that will not be submerged per Item 659 and General Notes.

48 hours following a rainfall event, the Trap shall be dewatered. Water shall be pumped from the surface of the ponded water to avoid disturbance of accumulated sediment.

The trap shall be removed per COLS Item 207.04, filled to finished grade per COLS Item 203.05, and permanently seeded per Item 659 and General Notes upon drainage area stabilization.

The following quantities have been carried to Sheet 18:

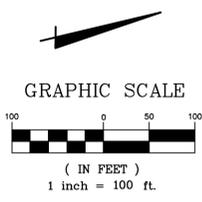
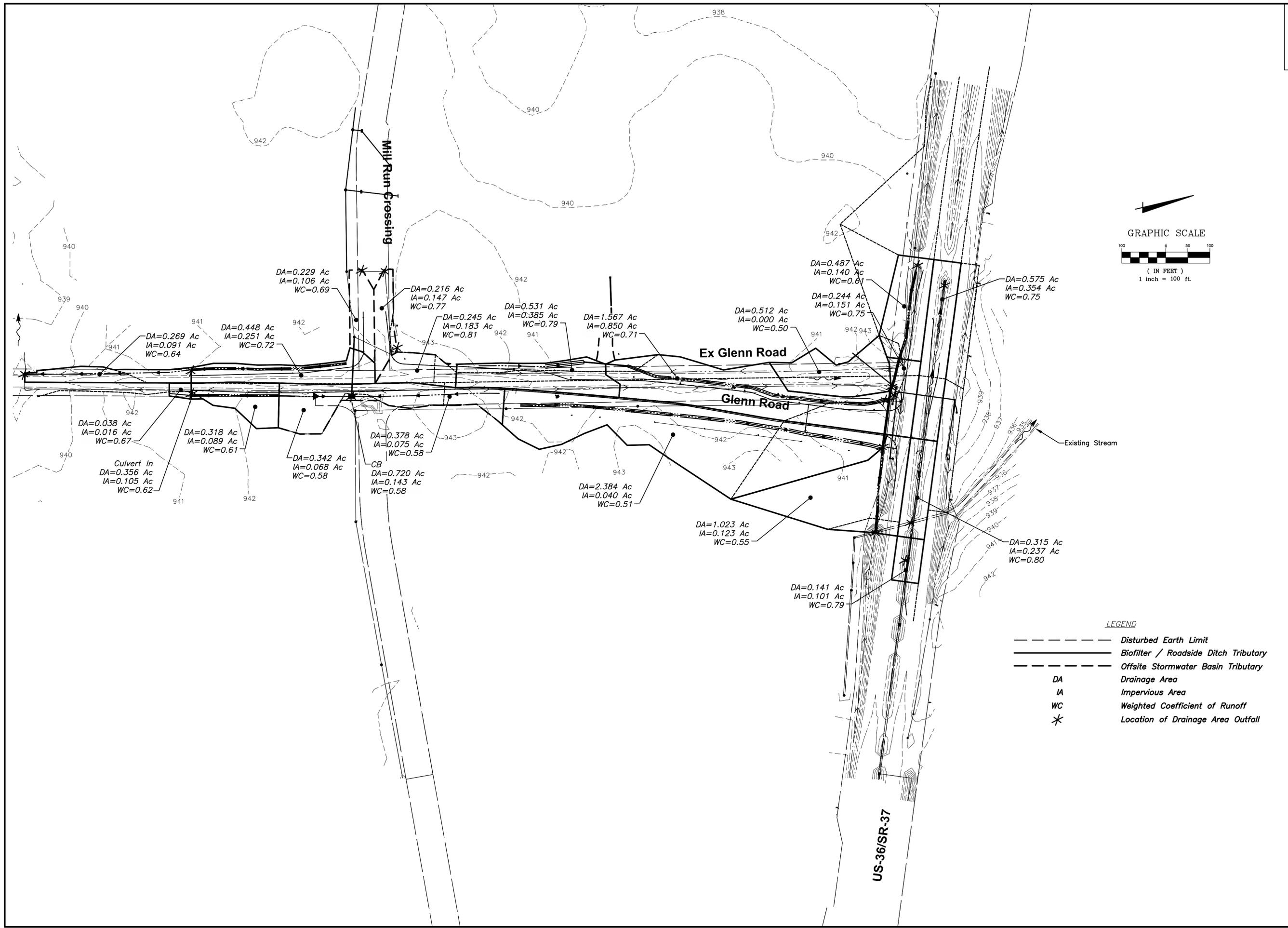
Item 207 – Sediment Trap No.1, As Per Plan	1 Lump Sum
Item 207 – Sediment Trap No.2, As Per Plan	1 Lump Sum
Item 207 – Sediment Trap No.3, As Per Plan	1 Lump Sum

SEQUENCE OF CONSTRUCTION

1. Construct Temporary Trap.
2. Upon stabilization of the tributary area, remove the temporary traps and grade the area in preparation for the biofilters.
3. Install the biofilters and permanently stabilize the disturbed areas.

4 / 5	Job No. 20080386	Date February 2015	Scale AS NOTED	CITY OF DELAWARE, DELAWARE COUNTY, OHIO STREET IMPROVEMENT PLAN FOR GLENN ROAD / US-36 TO MILL RUN CROSSING IMPROVEMENTS
STORM WATER POLLUTION PREVENTION PLAN				 <small>EMHT Engineers, Mechanical, Electrical & Traction, Inc. Engineers • Surveyors • Planners • Scientists 5500 New Albany Road, Columbus, OH 43254 Phone: 614/752-5500 Fax: 614/752-5501</small>
MARK	DATE	DESCRIPTION		

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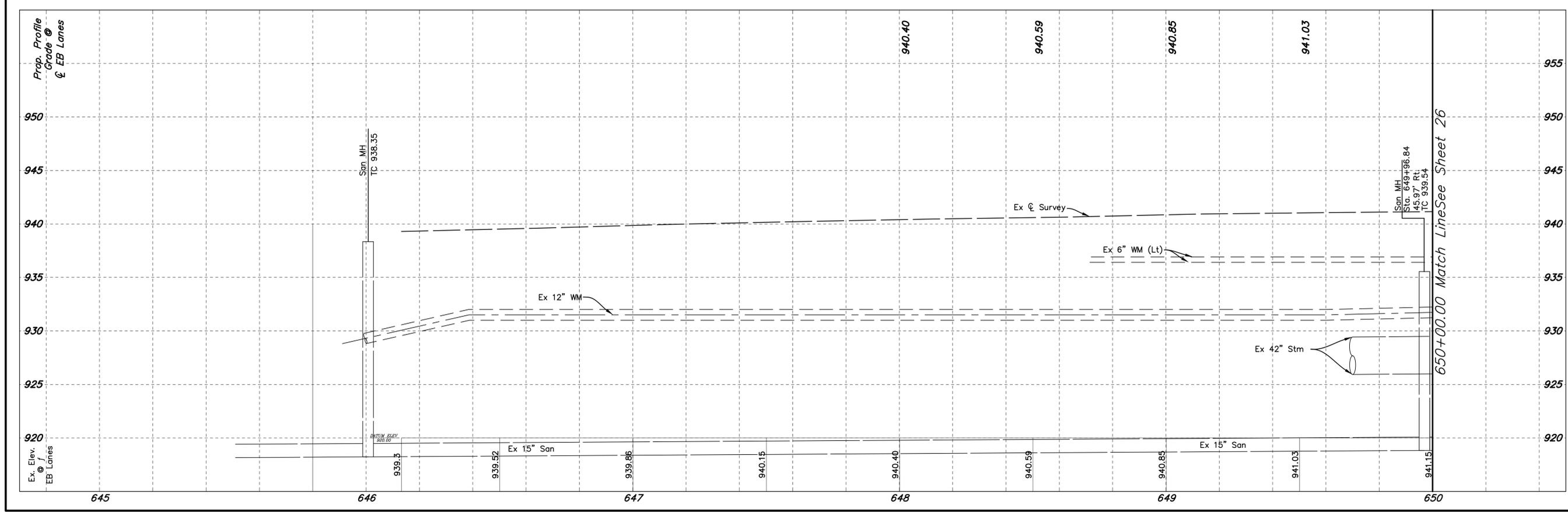
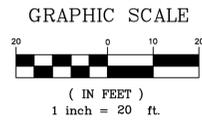
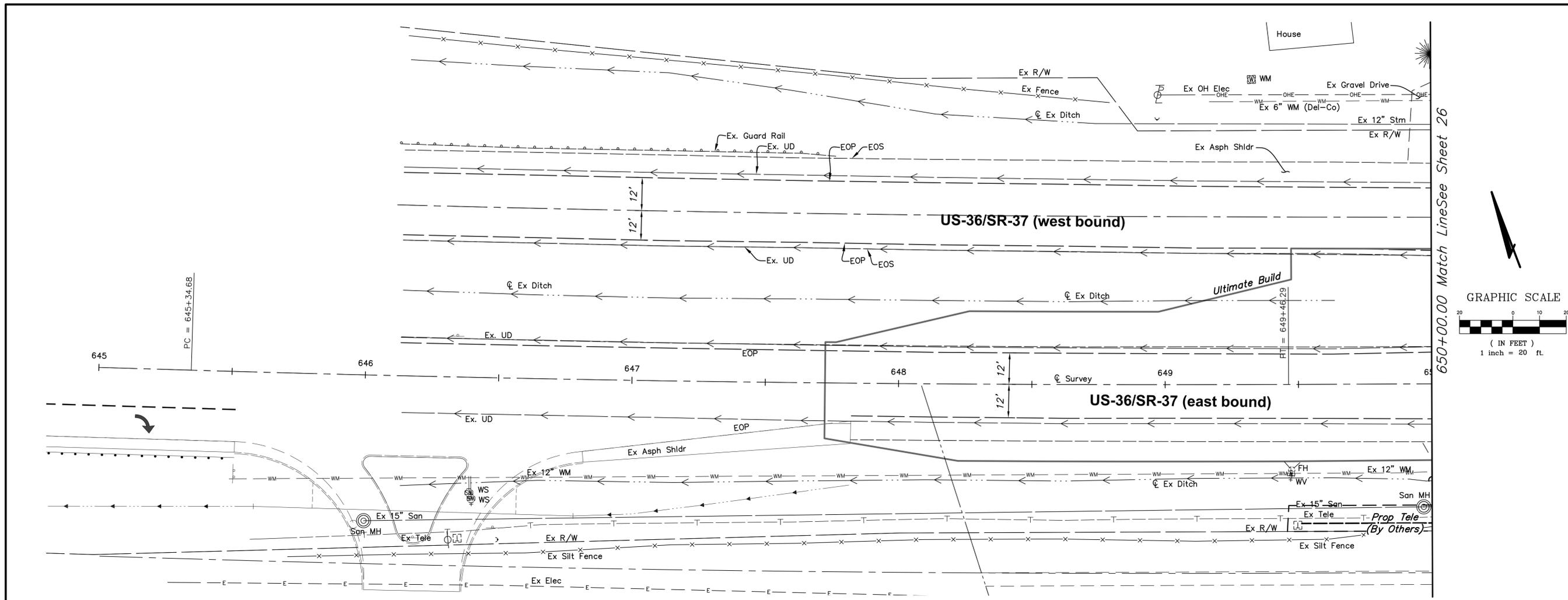
LEGEND

---	Disturbed Earth Limit
—	Biofilter / Roadside Ditch Tributary
- - -	Offsite Stormwater Basin Tributary
DA	Drainage Area
IA	Impervious Area
WC	Weighted Coefficient of Runoff
*	Location of Drainage Area Outfall

REVISIONS		CITY OF DELAWARE, DELAWARE COUNTY, OHIO STREET IMPROVEMENT PLAN FOR GLENN ROAD / US-36 TO MILL RUN CROSSING IMPROVEMENTS	Date February 2015 Scale Horiz: 1" = 100'	Job No. 20080386 Sheet 24 / 74
MARK	DATE			



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	Job No. 20080386	Date February 2015	Sheet 25 / 74															
CITY OF DELAWARE, DELAWARE COUNTY, OHIO STREET IMPROVEMENT PLAN FOR GLENN ROAD / US-36 TO MILL RUN CROSSING IMPROVEMENTS																		
PLAN AND PROFILE US-36/SR-37 STA. 645+00 TO STA. 650+00																		
	REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>MARK</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>			MARK	DATE	DESCRIPTION												
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