DEVELOPMENT COMPLETION REPORT

AREA B: SUB-PARCEL B4-1
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

Prepared For:

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ARM Project No. 160443M-3

Respectfully Submitted,

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Senior Vice President

Revision 0 – April 11, 2018

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FIGURES

APPENDICES

1.0 INTRODUCTION

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has prepared this Development Completion Report for a portion of the Tradepoint Atlantic property (formerly Sparrows Point Terminal, LLC) that has been designated as Area B: Sub-Parcel B4-1 (the Site).

For scheduling purposes, this parcel was divided into Sub-Parcels B4-1 and B4-2 to facilitate the expedited investigation and development of Sub-Parcel B4-1. A Phase II Investigation was conducted on Sub-Parcel B4-1 in accordance with the Phase II Investigation Work Plan – Area B: Parcel B4, Sub-Parcel B4-1 (Expedited Area), Revision 0, dated January 27, 2016. A Phase II Investigation was subsequently conducted on the entire Parcel B4 area in accordance with the Phase II Investigation Work Plan – Area B: Parcel B4, Sub-Parcel B4-1 and Sub-Parcel B4-2, Revision 1 dated July 8, 2016. Sub-Parcel B4-1 has undergone recent industrial redevelopment as was specified in the agency approved Response and Development Work Plan (RADWP) for Area B: Sub-Parcel B4-1 (Automotive and RO-RO Distribution Center), Revision 2 dated August 10, 2016. This Development Completion Report describes the completed construction and development activities conducted on Sub-Parcel B4-1.

The RADWP for Sub-Parcel B4-1 (Revision 2) was submitted to the Maryland Department of the Environment (MDE) and United States Environmental Protection Agency (USEPA) on August 10, 2016, prior to the submission of the Phase II Investigation Report for the entire Parcel B4. The submission of the Sub-Parcel B4-1 RADWP was advanced due to Tradepoint Atlantic's desire to expedite development of an Automotive Roll On – Roll Off (RO-RO) Distribution Center on Sub-Parcel B4-1. Also included in this development were improvements on approximately 1 acre of land (the Fender Area) in Parcel B5 for a stern dock facility, and a paved access road to connect the two areas. The proposed use of the Site is Tier 3B – Restricted Industrial. Relevant Phase II Investigation results from within the development area were included in the Sub-Parcel B4-1 RADWP. The Sub-Parcel B4-1 RADWP was approved by the MDE via email on June 1, 2016. The Phase II Investigation Report for the entirety of Parcel B4 (Revision 0) was provided to the agencies on March 3, 2017.

1.1. REPORT PURPOSE

The purpose of this Response and Development Completion Report is to document response action and development activities undertaken in order to secure a No Further Action (NFA) Letter and Certificate of Completion (COC) for the Site. In addition, this report is being submitted in accordance with the requirements outlined in the following agreements:

- Administrative Consent Order (ACO) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the MDE, effective September 12, 2014; and

- Settlement Agreement and Covenant Not to Sue (SA) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the USEPA, effective November 25, 2014.

The following section (Section 1.2) provides the project background, and Section 1.3 provides an overview of the Site development and response action activities. The response actions performed are described in Section 2 and conclusions are provided in Section 3.

1.2. SITE DESCRIPTION AND HISTORY

From the late 1800s until 2012, the production and manufacturing of steel was conducted at Sparrows Point. Iron and steel production operations and processes at Sparrows Point included raw material handling, coke production, sinter production, iron production, steel production, and semi-finished and finished product preparation. In 1970, Sparrows Point was the largest steel facility in the United States, producing hot and cold rolled sheets, coated materials, pipes, plates, and rod and wire. The steel making operations at Sparrows Point ceased in fall 2012.

The Maintenance Repair Shop located in the southwestern area of Sub-Parcel B4-1 was formerly occupied by the Phoenix Aggregate and Industrial Minerals Company. Based on historic aerial images available through Google Earth Pro, the building was constructed between August 2006 and September 2007. The company was active while the steel facility was operational, and primarily served to process slag into aggregate for resale. The building was used for the maintenance of company equipment, and processing operations took place elsewhere on the property. There were no aggregate stockpiles observed nearby the building in the historic aerial images. More recently, the building has been occupied by MCM Management Corporation (MCM) as an equipment maintenance and repair facility.

Parcel B4 was formerly occupied by part of the Former Steel Making Area. Several iron and steel work processes were completed within the boundary of Parcel B4 (and are partially included within the Sub-Parcel B4-1 area). Detailed descriptions of the main facilities and processes are provided in the Sub-Parcel B4-1 RADWP.

The Site consists of approximately 21 acres of land located within Parcel B4 shown on **Figure 1**. The Site was vacant prior to recent development with the exception of an approximately 5,750 square foot former Maintenance Repair Shop that has been retained for future use. The development of Sub-Parcel B4-1 also included improvements on approximately 1 acre of land (the Fender Area) in Parcel B5 for a stern dock facility, and a paved access road to connect the two areas (**Figure 2**). The full extent of Parcel B4 is comprised of approximately 72 acres of the approximately 3,100-acre former steel mill property located in Sparrows Point, Maryland.

2.0 RESPONSE AND DEVELOPMENT ACTIVITIES

The development and construction activities on Sub-Parcel B4-1 included asphalt paving of the entire area (approximately 21 acres) and 30-foot wide access roads (totaling approximately 2,000 linear feet) connecting the new paved area to the existing Shipyard Road and to the turning basin. The asphalt paving serves as a suitable parking and storage area for automobiles. In addition, a 36,640 square foot paved area incorporating a foot stern ramp was built at the turning basin (Fender Area). Drawings for the proposed parcel development were provided in *Appendix D* and *Appendix E* of the Sub-Parcel B4-1 RADWP. Grading and Paving Red-Line As-Built drawings for the grading and paving development activities completed at the Site are included in **Appendix A** of this Completion Report. Electrical As-Built drawings are included as **Appendix B** of this Completion Report.

The process of constructing the parking area, access road, and stern dock involved the following tasks:

2.1. SEDIMENT AND EROSION CONTROL INSTALLATION

Installation of erosion and sediment controls was completed prior to any construction at the Site, and these controls were removed following the completion of site development as shown on the Grading and Paving Red-Line As-Built drawings (**Appendix A**).

2.2. MONITORING WELL ABANDONMENT

One groundwater monitoring well (SW-064-MWS) was located on Sub-Parcel B4-1. The location of this existing well is provided on **Figure 3**. Per the RADWP, this well was converted to a flush mount prior to paving.

2.3. DEMOLITION, GRADING AND SITE PREPARATION.

The demolition and backfilling of subgrade structures was performed under the oversight of Century Engineering. An Automotive Yard Closure Report was prepared by Jenkins Environmental, Inc. and was included in *Appendix C* of the Sub-Parcel B4-1 RADWP.

Site grading was performed to the grades shown in the Grading and Paving As-Built drawings (**Appendix A**).

2.4. LIGHT STANDARD PIER INSTALLATION.

Lighting piers were installed at the Site as shown in the Electrical As-Built drawings (**Appendix B**).

2.5. INSTALLATION OF ELECTRICAL CONDUIT, STORMWATER PIPING AND STRUCTURES.

Stormwater piping was installed at the grades and lines shown on the Grading and Paving Red-Line As-Built drawings (**Appendix A**). Installation of the electrical conduit occurred following the installation of the stormwater piping. The electrical utilities were installed as shown on the Electrical As-Built drawings (**Appendix B**).

2.6. PLACEMENT OF SUBBASE.

Following the installation of stormwater and electrical utilities, the Site was fine-graded and placement of subbase commenced. The parking areas and access roads, approximately 981,800 square feet in total, received a layer of subbase material at least 3 inches thick, which consisted of graded aggregate base (GAB) material, as shown on the Grading and Paving As-Built drawings (**Appendix A**).

2.7. SITE CAPPING

The Parcel B4 Phase II Investigation Report presented the human health Screening Level Risk Analysis (SLRA) performed for the entire parcel. One of the exposure units (EUs) evaluated in the SLRA corresponded to the 21-acre parking area developed as Sub-Parcel B4-1. The RADWP specified capping over the entire Sub-Parcel B4-1 area to mitigate a potential unacceptable risk to the Composite Worker if subsurface soils were relocated to the surface during development.

The Site, approximately 870,400 square feet including the access roadways, received light-duty paving, with 3 inches of asphalt. The 40,000 square foot truck loading area, the Berth Apron at the stern ramp, and additional areas as marked on the Grading and Paving Red-Line As-Built drawings (**Appendix A**) received heavy duty paving, with asphalt thickness of 4 inches. Therefore, the full thickness of the pavement section (i.e., asphalt cap) placed over the existing soils consisted of a minimum of 6 inches (at least 3 inches of GAB subbase and 3 inches of asphalt) in the light duty areas and a minimum of 7 inches (at least 3 inches of GAB subbase and 4 inches of asphalt) in the heavy duty areas. The subbase layer was placed above the existing site materials and graded as shown on the Grading and Paving Red-Line As-Built drawings (**Appendix A**) with an average elevation increase of 0.5 to 1.5 feet above the original grade.

The asphalt paving placed at the Site serves as suitable parking and a storage area for automobiles and acts as a physical barrier to prevent direct contact with the underlying soils. The completed pavement capping installed during development provides the necessary protective barrier overlying the existing site materials. This barrier is protective of potential exposures to Composite Workers performing duties at the Site, in conjunction with institutional controls (described below).

2.8. SECURITY AND LIGHTING.

Following the completion of paving, the contractor installed site security fencing, light masts and final electrical connections as shown on the Grading and Paving Red-Line As-Built drawings (**Appendix A)** and Electrical As-Built drawings (**Appendix B**).

2.9. EXCAVATED MATERIAL MANAGEMENT

Soil regrading and minor excavations for light post foundations took place during the development of Sub-Parcel B4-1. No excavated soils were taken from the 3,100-acre Tradepoint Atlantic property.

2.10. STORMWATER MANAGEMENT

The development received a variance from the requirement to install new stormwater management facilities on Sub-Parcel B4-1 (included in *Appendix F* of the Sub-Parcel B4-1 RADWP). New and field modified stormwater structures are shown on the Grading and Paving Red-Line As-Built Drawings (**Appendix A**).

2.11. INSTITUTIONAL CONTROLS (FUTURE LAND USE CONTROLS)

Long-term conditions related to future use of the Site will be placed on the NFA and COC. These conditions are anticipated to include the following:

- A restriction that limits the use of the property to industrial land use.
- A restriction prohibiting the use of groundwater for any purpose at the Site and a requirement to characterize, containerize, and properly dispose of groundwater in the event of deep excavations encountering groundwater.
- Notice to MDE prior to any future soil disturbance activities at the Site. This written notice will be required at least 30 days prior to any planned excavation activities.
- Requirement for a HASP in the event of any future excavations at the Site.
- Complete appropriate characterization and disposal of any future material excavated at the Site in accordance with applicable local, state, and federal requirements.
- Implementation of inspection procedures and maintenance of the engineering controls (containment remedies) as outlined the following section.

The responsible party will file the above deed restrictions as defined by the MDE VCP in the NFA and COC. The soil disturbance and maintenance requirements will apply to the capped

areas shown in **Figure 3**. The entire Site will be subject to the industrial use groundwater use restrictions.

2.12. POST REMEDIATION REQUIREMENTS

Post remediation requirements will include compliance with the conditions specified in the NFA, COC, and the deed restrictions recorded for the Site. Deed restrictions will be recorded within 30 days after receipt of the final NFA.

Maintenance requirements will include maintenance of the capped areas shown on **Figure 4** to minimize degradation of the cap which could lead to exposures to the underlying soil. The access road and Fender Area were not evaluated as a separate EU in the SLRA and are not subject to inspection and maintenance requirements. An updated Operations and Maintenance Plan (O&M Plan) for the cap is included as **Appendix C**. (A previous version of the O&M Plan was included as *Appendix I* of the Sub-Parcel B4-1 RADWP, but pavement thicknesses have been updated). The O&M Plan includes the inspection protocols and a maintenance schedule.

The responsible party will perform cap maintenance inspections, perform maintenance of the cap, and retain cap inspection records. Areas of the cap in Sub-Parcel B4-1 that have degraded to a Pavement Condition Index (PCI) of 4.0 will be repaired within 30 days of discovery. The MDE shall be notified within 10 business days of any repairs that are the result of a PCI of 4.0 or greater. The notification will include documentation of the conditions being repaired and the location of the repair.

In addition, MDE will be provided with a written notice at least 30 days prior to any future planned excavation activities at the Site. Written notice of planned excavation activities will include the proposed date(s) for the excavation, location of the excavation, health and safety protocols (as required), clean fill source (as required), and proposed characterization and disposal procedures.

3.0 CONCLUSION

Response and development actions were conducted as part of the redevelopment of the Site identified as Parcel B15. The primary response and development actions included abandonment of temporary groundwater collection points and wells, grading, paving, and security improvements.

As a result of the information contained herein, it has been demonstrated that the response and development actions have been completed in accordance with the recommendations for remediation specified in the Sub-Parcel B4-1 RADWP. The As-Built drawings provided in **Appendix A** and **Appendix B** verify that the response actions have been completed in accordance with the recommendations specified in the Phase II Investigation Report and that the Site is suitable for occupancy and use.

With construction of the engineering controls (caps) in conjunction with redevelopment of the Site, the applicable requirements for obtaining a NFA Letter and COC for this Site have been fulfilled. Therefore, Tradepoint Atlantic is respectfully requesting issuance of a NFA Letter for the Site at this time. The NFA Letter and the deed restrictions identified in the RADWP are intended to be recorded within 30 days after receipt of the final NFA Letter. Proof of recordation will be submitted to MDE upon receipt from Baltimore County.

FIGURES

Site Boundary

Parcel Boundaries

Private Property

Parcel A9
Parcel A5
Parcel A13
Parcel A7
Parcel A14
Parcel A11
Parcel A8
Parcel A12
Parcel A2
Parcel A15
Parcel A17
Parcel A18
Parcel A16
Parcel A6
Parcel A4
Parcel A10
Parcel A3
Parcel A1
Parcel B6
Parcel B8
Parcel B14
Parcel B22
Parcel B16
Parcel B21
Parcel B15
Parcel B24
Parcel B23
Parcel B25
Parcel B7
Parcel B1
Parcel B2
Parcel B3
Parcel B17
Parcel B19
Parcel B4
Parcel B5
Parcel B9
Parcel B18
Parcel B10
Parcel B13
Parcel B20
Parcel B11
Parcel B12

Tradepoint Atlantic
Area A and Area B Parcels

March 1, 2018

Figure 1

N

ARM Group Inc.
Earth Resource Engineers and Consultants

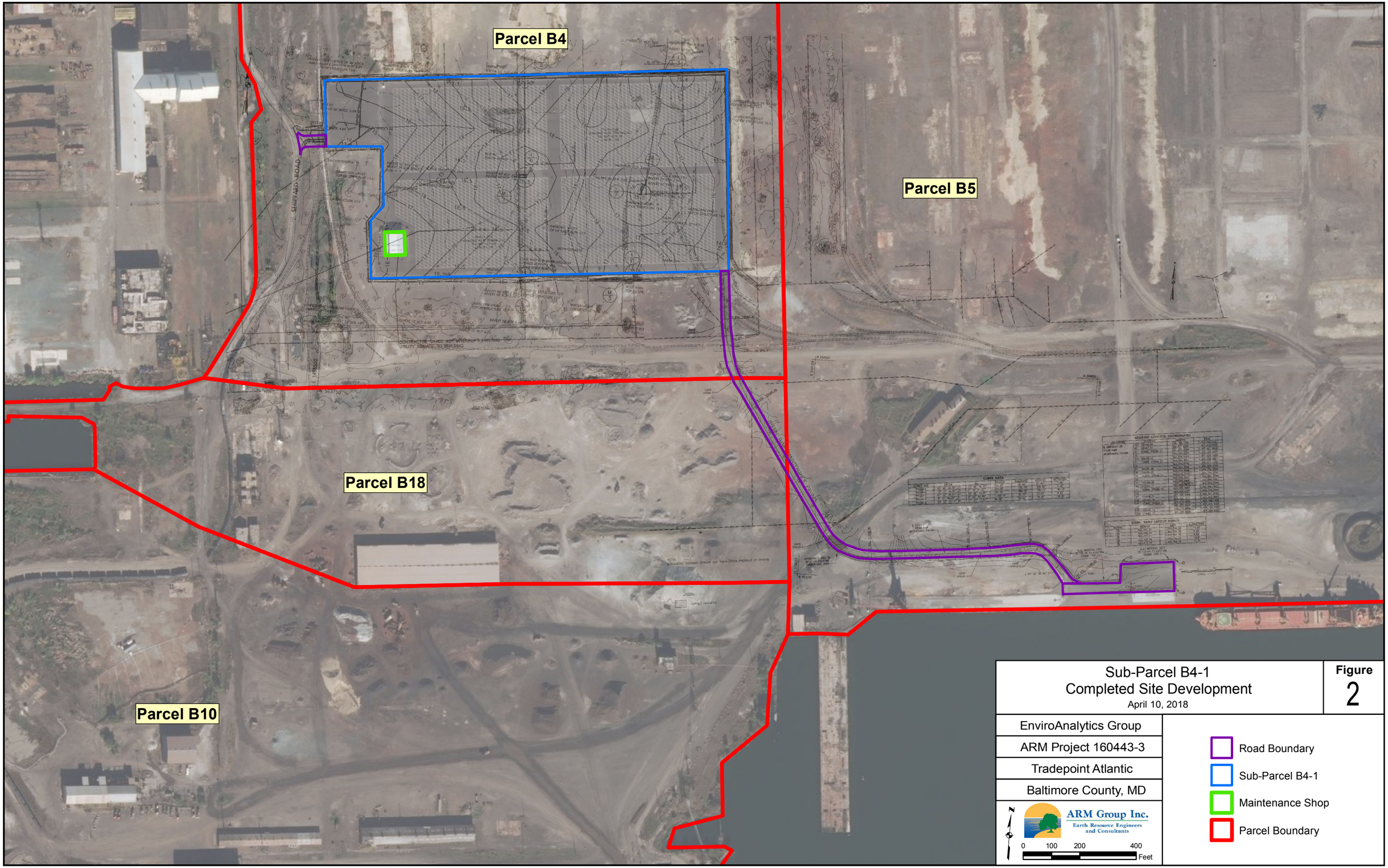
0 500 1,000 2,000 Feet

Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

Area A: Project 150298M
Area B: Project 150300M
Development: Project 160443M



Sub-Parcel B4-1
Completed Site Development
April 10, 2018

Figure 2

EnviroAnalytics Group

ARM Project 160443-3

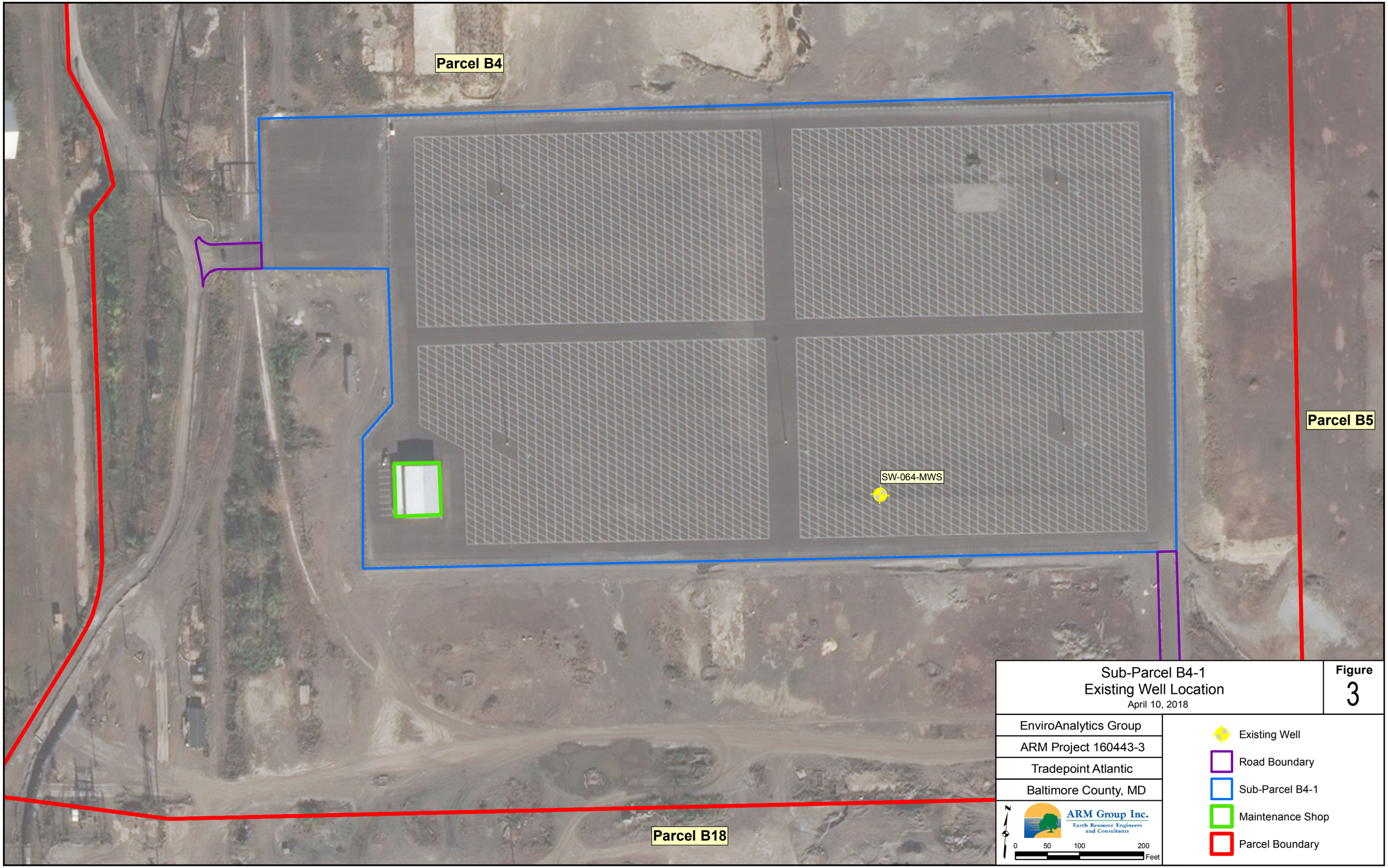
Tradepoint Atlantic

Baltimore County, MD

ARM Group Inc.
Earth Resource Engineers and Consultants

0 100 200 400
Feet

- Road Boundary
- Sub-Parcel B4-1
- Maintenance Shop
- Parcel Boundary



Sub-Parcel B4-1
Existing Well Location
April 10, 2018

Figure
3

EnviroAnalytics Group

ARM Project 160443-3

Tradepoint Atlantic

Baltimore County, MD

ARM Group Inc.
Earth Resource Engineers and Consultants

0 50 100 200
Feet

Existing Well

Road Boundary

Sub-Parcel B4-1

Maintenance Shop

Parcel Boundary

Sub-Parcel B4-1
Capping Remedy
April 10, 2018

Figure
4

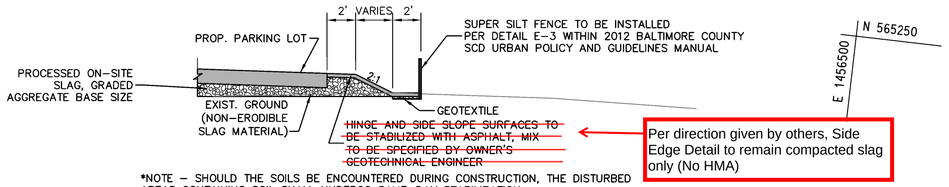
EnviroAnalytics Group
ARM Project 160443-3
Tradepoint Atlantic
Baltimore County, MD

ARM Group Inc.
Earth Resource Engineers and Consultants

0 100 200 400
Feet

Road Boundary
Sub-Parcel B4-1
Maintenance Shop
Capping Remedy
Parcel Boundary

APPENDIX A



*NOTE – SHOULD THE SOILS BE ENCOUNTERED DURING CONSTRUCTION, THE DISTURBED AREAS CONTAINING SOIL SHALL UNDERGO SAME-DAY STABILIZATION.

TIE-IN DETAIL - PARKING LOT PERIMETER - SHEET FLOW AWAY FROM SITE

NOT TO SCALE

Per direction given by others, Side Edge Detail to remain compacted slag only (No HMA)

GRADING NOTE:
ENTIRE LOT GRADED TO MODIFIED 1% GRADE PLAN PROVIDED BY OTHERS.

SEE ATTACHED EXHIBIT A FOR FINAL LOT GRADES.

SHEET C-002

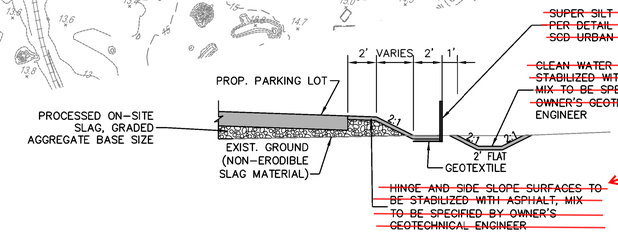
SHEET C-003

Service road Location See Exhibit B for existing Location

SHIPYARD ROAD

CONTRACTOR SHALL NOT INTERRUPT EXISTING UTILITY SERVICE TO BUILDING

Super Silt Fence per detail has been removed and is not included in the final site built condition.



Per direction given by others, Swale and Side Edge Detail to remain compacted slag only (No HMA)

100 0 100 200'

SCALE: 1" = 100'

*NOTE – SHOULD THE SOILS BE ENCOUNTERED DURING CONSTRUCTION, THE DISTURBED AREAS CONTAINING SOIL SHALL UNDERGO SAME-DAY STABILIZATION.

TIE-IN DETAIL - PARKING LOT PERIMETER - OFFSITE DRAINAGE TO LOT

NOT TO SCALE

SITE INFORMATION

TOTAL SITE AREA 3,100.00 ACRES
TOTAL DISTURBED AREA 23.26 ACRES (1,013,121 SF)

NOT FOR CONSTRUCTION
FIELD MODIFICATIONS
CONTRACTOR REVIEW SET

VERSION		
NO.	DATE	NOTES

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949

TRADEPOINT ATLANTIC

PASHA

PROJECT	
FILE	
CTB	
DESIGNER	
EDIT DATE	
SAVE TIME	
PLOT DATE	
PLOT TIME	

OVERALL GRADING AND DRAINAGE PLAN

AUTOMOTIVE AND RO-RO DISTRIBUTION CENTER

SPARROWS POINT, MARYLAND

C-001

NOTES:

1. THE EXISTING CONTOURING SHOWN ON THIS PLAN WITHIN THE MAJORITY OF OUR WORKING AREA IS FROM 2016 TOPOGRAPHICAL SURVEY. ADDITIONAL EXISTING CONTOURING IS TAKEN FROM PREVIOUSLY FLOWN LIDAR SURVEY.

GRADING NOTE:
ENTIRE LOT GRADED TO MODIFIED 1% GRADE PLAN PROVIDED BY OTHERS.

SEE ATTACHED EXHIBIT A FOR FINAL LOT GRADES.

HIGHLIGHTED AREA = Heavy Duty Paving Section = 4" HMA

Remainder of Lot = 3" HMA

See Exhibit B for Location

I-2 Actual Location (At Corners)
564914.39 N / 1457129.51 E
564914.56 N / 1457132.25 E
564922.98 N / 1457128.83 E
564923.25 N / 1457131.53 E

I-6 Actual Location (At Corners)
564557.25 N / 1457160.62 E
564557.04 N / 1457169.26 E
564554.43 N / 1457160.48 E
564554.25 N / 1457169.17 E

FIELD MODIFIED EXISTING STRUCTURE AND RAISED TO GRADE IN LIEU OF REMOVAL AND REPLACEMENT WITH NEW

Per Note 1 on Dwg PP-01

M-1 Actual Location
564556.24 N / 1457144.37 E

I-10 Actual Location (At Corners)
564190.72 N / 1457188.44 E
564189.62 N / 1457179.96 E
564192.24 N / 1457179.56 E
564193.43 N / 1457188.16 E

INVERT CONFLUENCE OF 36" BRICK AND 48"x36" CONCRETE BOX 3.39
TOP OF STRUCTURE 13.6

TOP OF STRUCTURE 14.4

TEST PIT TOP OF 48" RCP 6.99

TEST PIT TOP OF 36" BRICK 5.39

TEST PIT TOP OF 36" BRICK 4.84

INVERT 36" BRICK 1.98

SHIPYARD ROAD

FIRE HYDRANT

UNKNOWN VAULT TOP OF STRUCTURE 14.6

INVERT 12" RCP 9.40
INVERT 24"x36" BRICK BOX 9.16

TOP OF STRUCTURE 14.0

TOP OF STRUCTURE 14.2
POSSIBLE OLD FOOTING

YARD HYDRANT

SSMH TOP OF STRUCTURE 13.9

WELL CAPS?

TEST PIT TOP OF 48" RCP 7.24

STOCK PILE

EX. 42" SD

EX. 12" SD

EX. 8" SD

EX. 3'x5' SD

EX. 18" SD

EX. 24" SD

EX. 36" SD

EX. 48" SD

PROPERTY OF
SPARROWS POINT TERMINAL, LLC
TAX MAP 111, P. 318
L. 35478, F. 379

EX. BUILDING
FF. GAR.=16.19'

ASSUMED EXISTING STORM DRAIN ALIGNMENT

UNKNOWN VAULT TOP OF STRUCTURE 13.7

MONITOR WELL

CONC PAD W/ FORMER HYDRANT (CAPPED VERTICAL WL) TOP OF STRUCTURE 14.3

TEST PIT TOP OF 48" RCP 6.84

CONTRACTOR SHALL NOT INTERRUPT EXISTING UTILITY SERVICE TO BUILDING

INVERT 48" RCP 2.30
INVERT 48" RCP 2.28

TOP OF STRUCTURE 12.7

UNKNOWN VAULT TOP OF STRUCTURE 12.7

WATER VAU
TOP OF STR

VERIFIED THAT UPSTREAM INVERT IS LOWER IN THIS AREA

INVERT 72" RCP -0.76

INVERT 72" RCP -1.05

INVERT 72" RCP -0.40

INVERT 72" RCP 0.24

E 1456450

N 564050

MATCH LINE – SEE SHEET C–003

50' 0 50' 100'
SCALE: 1" = 50'

NOT FOR CONSTRUCTION
FIELD MODIFICATIONS
CONTRACTOR REVIEW SET

VERSION		
NO.	DATE	NOTES

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72 Loveton Circle Baltimore, Maryland 21152-0949

TRADEPOINT ATLANTIC

PASHA

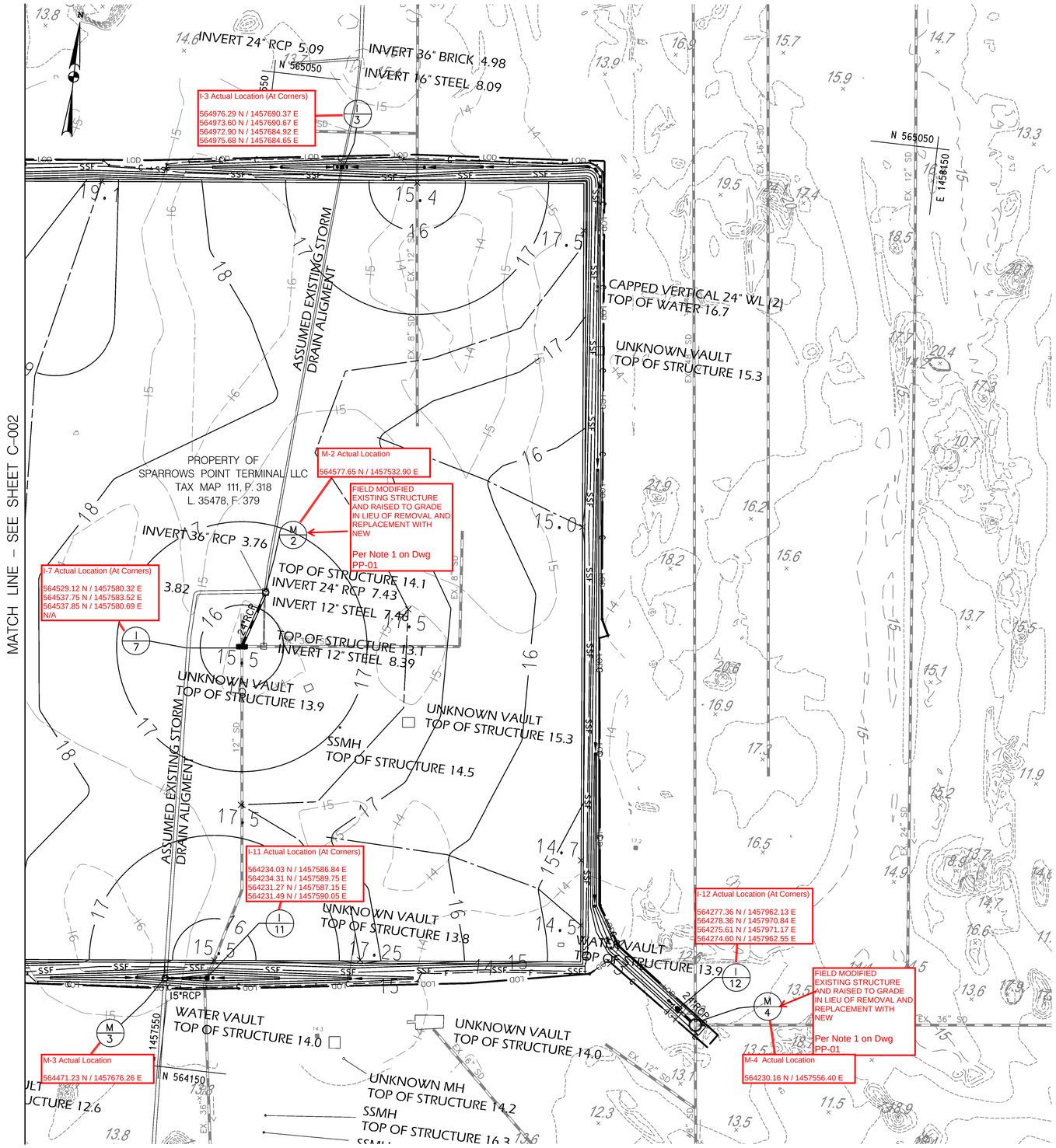
PROJECT	
FILE	
CTB	
DESIGNER	
EDIT DATE	
SAVE TIME	
PLOT DATE	
PLOT TIME	

GRADING PLAN

AUTOMOTIVE AND RO–RO DISTRIBUTION CENTER

SPARROWS POINT, MARYLAND

C–002



NOTES:

1. THE EXISTING CONTOURING SHOWN ON THIS PLAN WITHIN THE MAJORITY OF OUR WORKING AREA IS FROM 2016 TOPOGRAPHICAL SURVEY. ADDITIONAL EXISTING CONTOURING IS TAKEN FROM PREVIOUSLY FLOWN LIDAR SURVEY.

GRADING NOTE:
ENTIRE LOT GRADED TO MODIFIED 1% GRADE PLAN PROVIDED BY OTHERS.

SEE ATTACHED EXHIBIT A FOR FINAL LOT GRADES.

50' 0 50' 100'
SCALE: 1" = 50'

NOT FOR CONSTRUCTION
FIELD MODIFICATIONS
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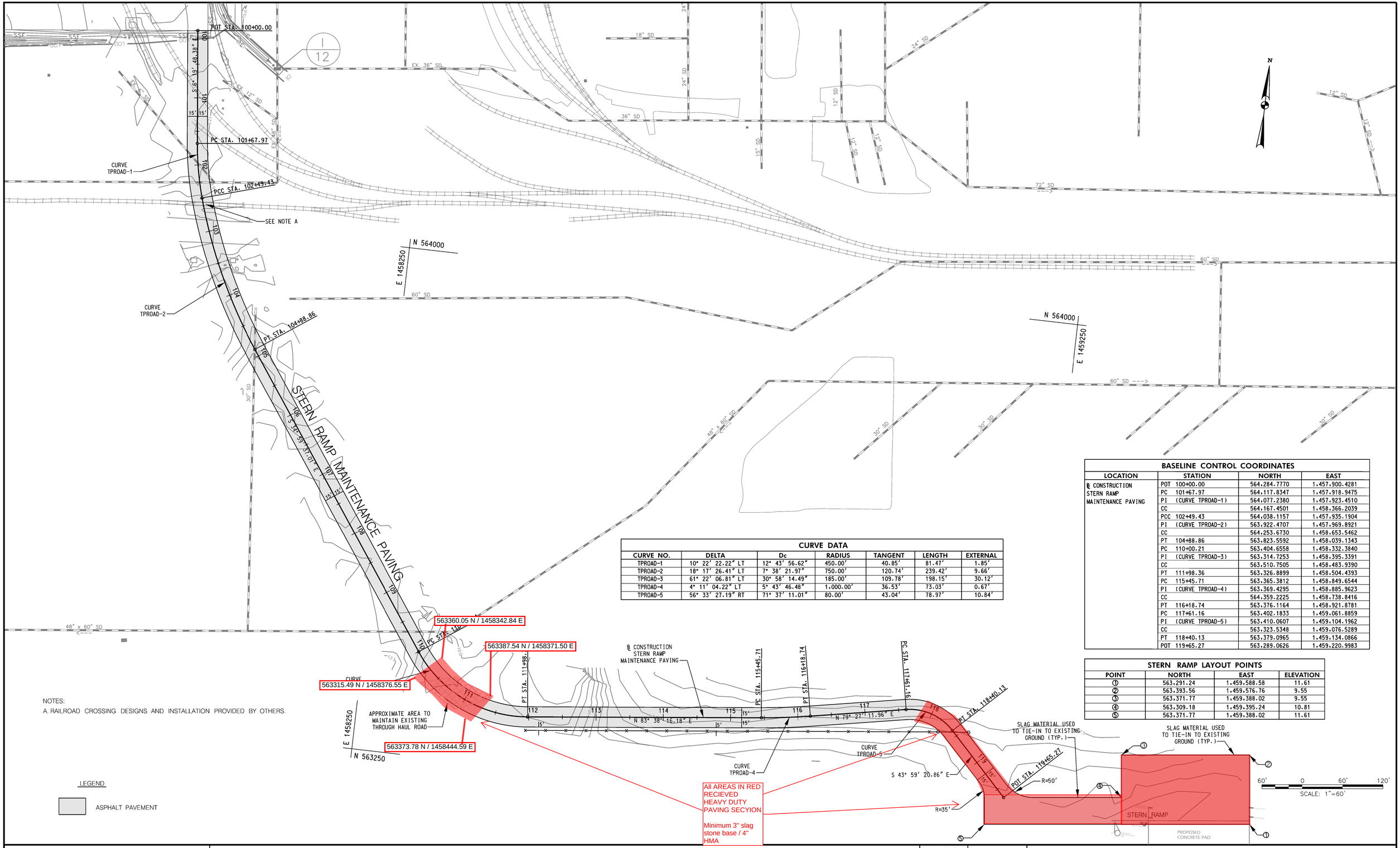
GRADING PLAN

AUTOMOTIVE AND RO–RO DISTRIBUTION CENTER

SPARROWS POINT, MARYLAND | C–003



NOTES:

A. RAILROAD CROSSING DESIGNS AND INSTALLATION PROVIDED BY OTHERS.

LEGEND

ASPHALT PAVEMENT

CURVE DATA

CURVE NO.	DELTA	Dc	RADIUS	TANGENT	LENGTH	EXTERNAL
TPROAD-1	10° 22' 22.22" LT	12° 43' 56.62"	450.00'	40.85'	81.47'	1.85'
TPROAD-2	18° 17' 26.41" LT	7° 38' 21.97"	750.00'	120.74'	239.42'	9.66'
TPROAD-3	61° 22' 06.81" LT	30° 58' 14.49"	185.00'	109.78'	198.15'	30.12'
TPROAD-4	4° 11' 04.22" LT	5° 43' 46.48"	1,000.00'	36.53'	73.03'	0.67'
TPROAD-5	56° 33' 27.19" RT	71° 37' 11.01"	80.00'	43.04'	78.97'	10.84'

BASELINE CONTROL COORDINATES

LOCATION	STATION	NORTH	EAST
℄ CONSTRUCTION STERN RAMP MAINTENANCE PAVING	POT 100+00.00	564,284.7770	1,457,900.4281
	PC 101+67.97	564,117.8347	1,457,918.9475
	PI (CURVE TPROAD-1)	564,077.2380	1,457,923.4510
	CC	564,167.4501	1,458,366.2039
	PCC 102+49.43	564,038.1157	1,457,935.1904
	PI (CURVE TPROAD-2)	563,922.4707	1,457,969.8921
	CC	564,253.6730	1,458,653.5462
	PT 104+88.86	563,823.5592	1,458,039.1343
	PC 110+00.21	563,404.6558	1,458,332.3840
	PI (CURVE TPROAD-3)	563,314.7253	1,458,395.3391
	CC	563,510.7505	1,458,483.9390
	PT 111+98.36	563,326.8899	1,458,504.4393
	PC 115+45.71	563,365.3812	1,458,849.6544
	PI (CURVE TPROAD-4)	563,369.4295	1,458,885.9623
	CC	564,359.2225	1,458,738.8416
	PT 116+18.74	563,376.1164	1,458,921.8781
	PC 117+61.16	563,402.1833	1,459,061.8859
	PI (CURVE TPROAD-5)	563,410.0607	1,459,104.1962
	CC	563,323.5348	1,459,076.5289
	PT 118+40.13	563,379.0965	1,459,134.0866
	POT 119+65.27	563,289.0626	1,459,220.9983

STERN RAMP LAYOUT POINTS

POINT	NORTH	EAST	ELEVATION
①	563,291.24	1,459,588.58	11.61
②	563,393.56	1,459,576.76	9.55
③	563,371.77	1,459,388.02	9.55
④	563,309.18	1,459,395.24	10.81
⑤	563,371.77	1,459,388.02	11.61

VERSION		
NO.	DATE	NOTES

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
72 Loveton Circle Baltimore, Maryland 21152-0949

TRADEPOINT ATLANTIC

PASHA

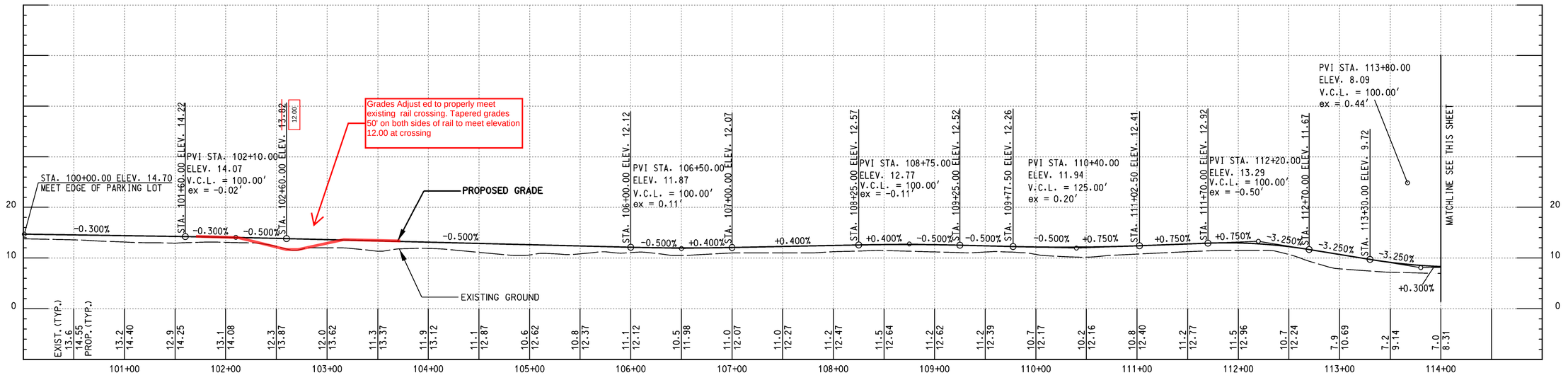
PROJECT	
FILE	
CTB	
DESIGNER	
EDIT DATE	
SAVE TIME	
PLOT DATE	
PLOT TIME	

MAINTENANCE PAVING PLAN

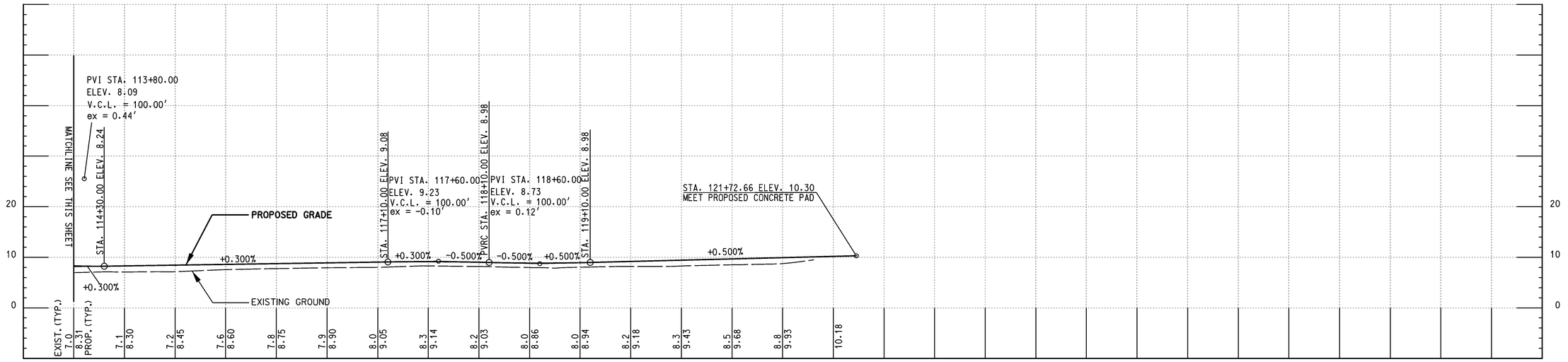
PARKING LOT TO STERN RAMP MAINTENANCE PAVING

SPARROWS POINT, MARYLAND

C-001



MAINTENANCE PAVING PROFILE – STA. 100+00.00 TO 114+00.00



MAINTENANCE PAVING PROFILE – STA. 114+00.00 TO 121+72.66

25' 0 25' 50'
HORIZONTAL SCALE : 1" = 50'-0"
5' 0 5' 10'
VERTICAL SCALE : 1" = 10'-0"

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FILE	
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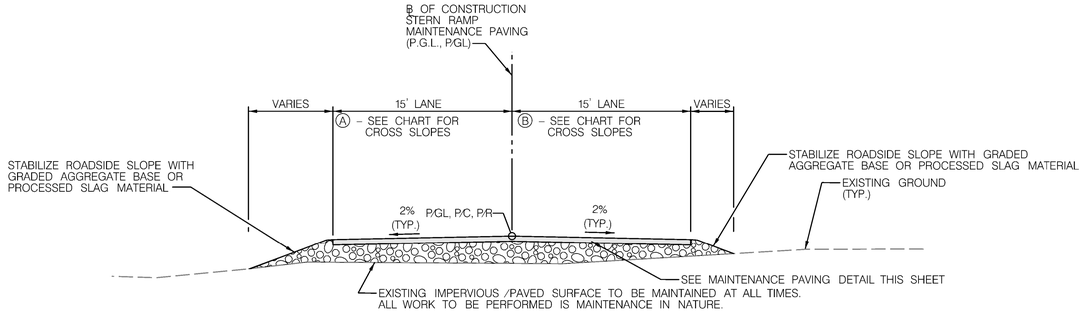
DESIGNER	
EDIT DATE	
SAVE TIME	
PLOT DATE	
PLOT TIME	

MAINTENANCE PAVING PROFILE

PARKING LOT TO STERN RAMP MAINTENANCE PAVING

SPARROWS POINT, MARYLAND | PR–001



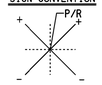
STERN RAMP MAINTENANCE PAVING TYPICAL SECTION

STA. 100+00.00 TO STA. 121+72.66

NOT TO SCALE

APPROX. MAINTENANCE PAVING CROSS SLOPES		
STATION	Ⓐ	Ⓑ
100+00.00	-2.00	-2.00
101+00.00	-2.00	2.00
102+00.00	-2.00	2.00
103+00.00	-2.00	-2.00
104+00.00	-2.00	-2.00
105+00.00	2.00	-2.00
106+00.00	2.00	-2.00
107+00.00	-2.00	-2.00
113+00.00	-2.00	-2.00
114+00.00	-2.00	2.00
121+00.00	-2.00	2.00
121+72.65	-2.00	-2.00

SUPERELEVATION SIGN CONVENTION

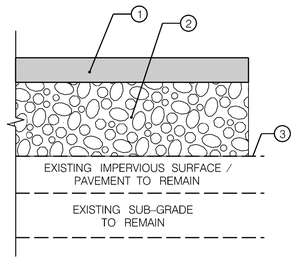


NOTE: ALL CROSS SLOPES ARE IN %

All Service on Stern road is 3" with the exception of highlighted areas on shet C001, which are a heavy duty section with 4" of HMA

LEGEND

1. 3" ASPHALT FOR SURFACE
2. 8" GRADED AGGREGATE BASE OR 8" PROCESSED SLAG MATERIAL
3. TOP OF EXISTING IMPERVIOUS /PAVEMENT SURFACE



MAINTENANCE PAVING DETAIL

NOT TO SCALE

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72 Loveton Circle Baltimore, Maryland 21152-0949

TRADEPOINT ATLANTIC

PASHA

PROJECT	
FILE	
CTB	
DESIGNER	
EDIT DATE	
SAVE TIME	
PLOT DATE	
PLOT TIME	

MAINTENANCE PAVING DETAILS

PARKING LOT TO STERN RAMP MAINTENANCE PAVING

SPARROWS POINT, MARYLAND

DE-001

SITE PLAN 2 DO NOT MOVE VIEWPORT

SITE PLAN 2

1218'
1116'
1'
30'
20'
EOP
FENCE
22'
542'
31'
296'
47'
42'
200'
217'
74'
122'
40'
149'
201'
82'
30'
311'
310'
640'
700'
29'
46'
69'
473'
542'

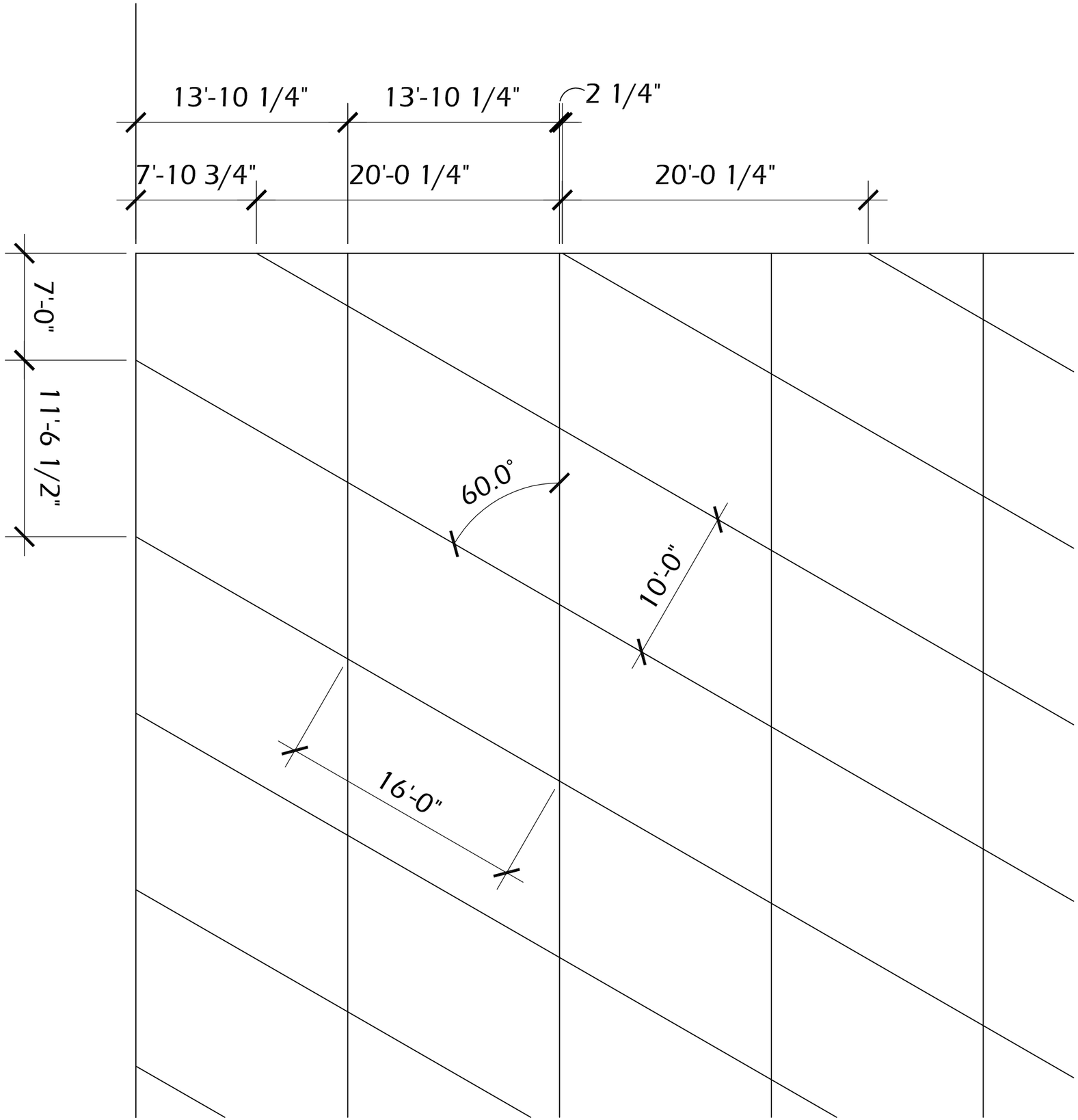
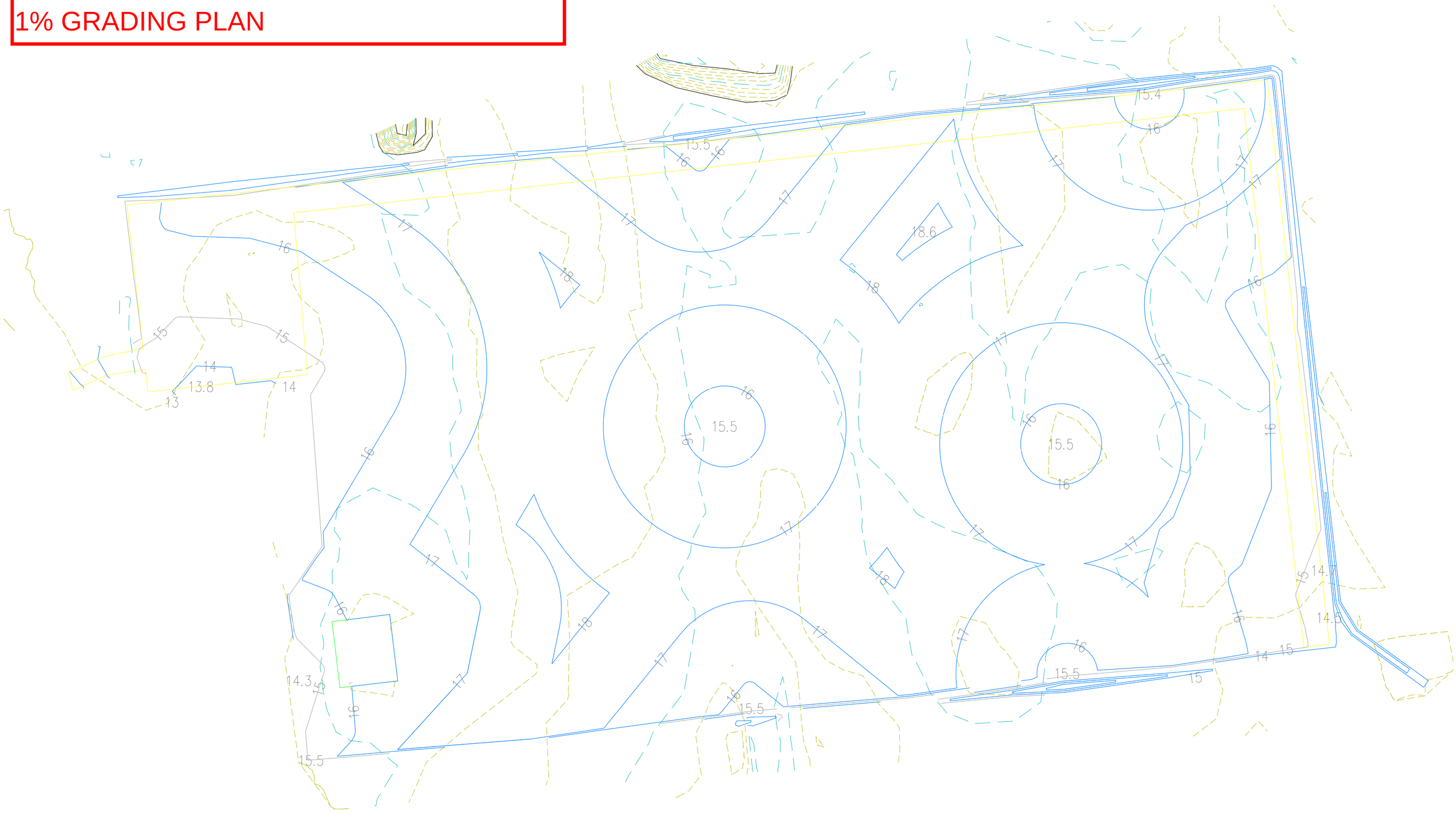

13'-10 1/4"
13'-10 1/4"
2 1/4"
7'-10 3/4"
20'-0 1/4"
20'-0 1/4"
7'-0"
11'-6 1/2"
60.0°
10'-0"
16'-0"

EXHIBIT A

1% GRADING PLAN

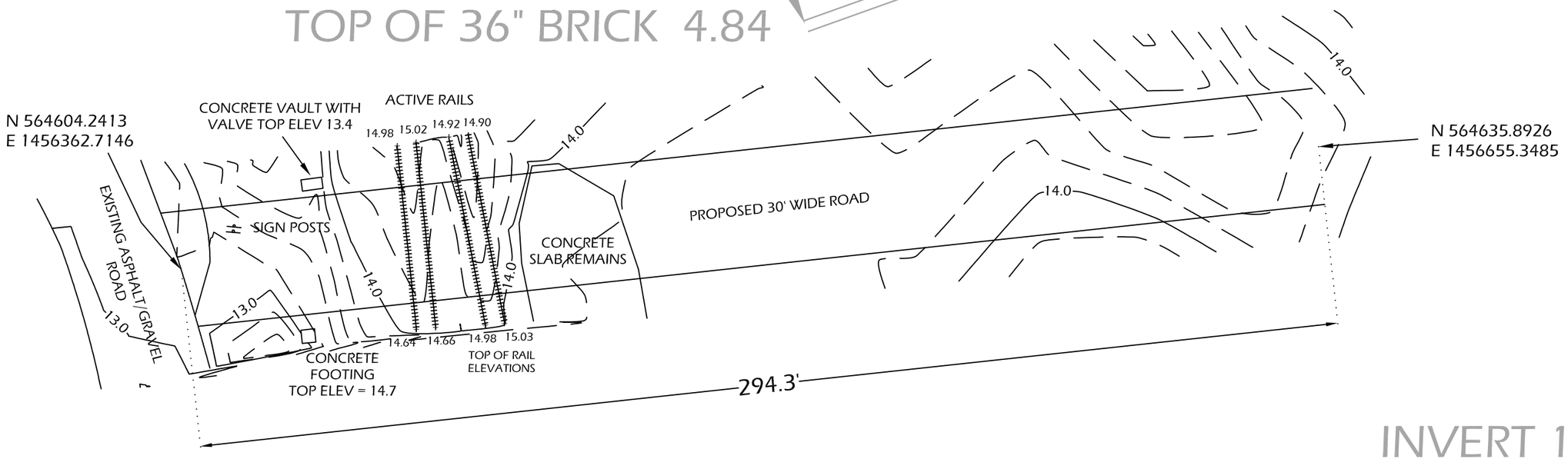


B

TEST PIT
TOP OF 36" BRICK 5.39

TEST PIT
TOP OF 36" BRICK 4.84

INVERT 36" BRICK 1.98



FIRE HYDRANT

UNKNOWN VAULT
TOP OF STRUCTURE 14.6

INVERT 12" RC
INVERT 24"x36
BOX 9.16

KCI TECHNOLOGIES
Engineers
Planners
Scientists
Construction Managers

RORO at Sparrows Point

Relocated West Entrance Drive Topo

JMS/NAR 07June2016
291601179 1"=30' 1 of 1

APPENDIX B

TRADEPOINT ATLANTIC

AUTOMOTIVE & RO-RO DISTRIBUTION FACILITY
SPARROWS POINT
BALTIMORE, MARYLAND

- SYMBOL SCHEDULE -

THIS IS A GENERIC SYMBOL SCHEDULE
NOT ALL SYMBOLS SHOWN ARE USED ON THE DRAWINGS

LIGHTING:

**SEE INDIVIDUAL FIXTURE SCHEDULE FOR SPECS

- = POLE LIGHTS
- = WALL MOUNTED LIGHTING FIXTURE
- = DOCKLIGHT
- = TRACK LIGHT - QUANTITY OF HEADS AS INDICATED ON DRAWING
- = RECESSED / SURFACE DOWNLIGHT
- = 2'x2' LAY-IN / SURFACE MOUNTED FLUORESCENT FIXTURE
- = 2'x4' LAY-IN / SURFACE MOUNTED FLUORESCENT FIXTURE
- = 2'x2' LAY-IN / SURFACE MOUNTED DIRECT / INDIRECT FLUORESCENT FIXTURE
- = 2'x4' LAY-IN / SURFACE MOUNTED DIRECT / INDIRECT FLUORESCENT FIXTURE
- = 2'x2' LAY-IN / SURFACE MOUNTED PARABOLIC FLUORESCENT FIXTURE
- = 2'x4' LAY-IN / SURFACE MOUNTED PARABOLIC FLUORESCENT FIXTURE
- = 2'x2' LAY-IN / SURFACE MOUNTED EMERGENCY, UNSWITCHED FLUORESCENT FIXTURE
- = 2'x4' LAY-IN / SURFACE MOUNTED EMERGENCY, UNSWITCHED FLUORESCENT FIXTURE
- = 8' INDUSTRIAL / STRIP FLUORESCENT FIXTURE
- = 4' INDUSTRIAL / STRIP FLUORESCENT FIXTURE
- = 8' SURFACE WALL MOUNT FLUORESCENT FIXTURE
- = 4' SURFACE WALL MOUNT FLUORESCENT FIXTURE
- = HID LIGHTING FIXTURE, HI-BAY
- = HID LIGHTING FIXTURE, HI-BAY W/QUARTZ RESTRIKE
- = ILLUMINATED EXIT SIGN
- = ILLUMINATED DOUBLE SIDED EXIT SIGN
- = ILLUMINATED EXIT SIGN, DIRECTIONAL ARROWS AS INDICATED
- = EMERGENCY BATTERY UNIT/EXIT SIGN COMBINATION PACK
- = EMERGENCY BATTERY UNIT
- = EMERGENCY REMOTE HEAD
- = EMERGENCY REMOTE HEADS
- = PHOTO CELL
- = FAN/LIGHT COMBINATION

CIRCUITING:

- = CONDUIT / WIRING CONCEALED IN WALL OR CEILING
- EXP = CONDUIT / WIRING RUN EXPOSED
- UN = CONDUIT / WIRING CONCEALED IN FLOOR OR UNDERGROUND
- OH = CONDUIT / WIRING OVERHEAD
- = BRANCH CIRCUIT HOMERUN TO PANELBOARD OR MCC
- = BRANCH CIRCUIT HOMERUN(S) TO PANELBOARD OR MCC QUANTITY OF ARROWS INDICATES CIRCUIT QUANTITY NUMERALS INDICATE UNIT OR CIRCUIT NUMBER
- = HATCH MARKS INDICATE UNSWITCHED CIRCUIT
- G = GROUND ROD, 3/4""x10'-0" LONG, COPPERCLAD STEEL U.N.O. (ALL CONNECTIONS EXOTHERMIC ALLY WELDED)
- = CONDUIT SEAL- OFF FITTING
- E = EMERGENCY CIRCUIT WIRING, 2 #12 AWG, C. (U.N.O.)
- N/E = NORMAL EMERGENCY CIRCUIT WIRING, 2 #12 AWG, C. (U.N.O.)
- N/L = NIGHT LIGHTING CIRCUIT WIRING, 2 #12 AWG, C. (U.N.O.)
- SR-1 = SURFACE RACEWAY, NUMBER INDICATES SPECIFICATION NUMBER
- = CONNECT TO EXISTING
- CT-2/12 = CABLE TRAY 6" ABOVE ACCESSIBLE CEILING UNLESS OTHERWISE NOTED '#/#' INDICATES TRAY HEIGHT / WIDTH

DISTRIBUTION & MOTOR CONTROL:

- T = POWER TRANSFORMER
- = PANELBOARD 120/208V (SEE PANEL SCHEDULE)
- = PANELBOARD 277/480V (SEE PANEL SCHEDULE)
- S_T = MANUAL MOTOR STARTER, SINGLE POLE WITH OVERLOADS
  P = PILOT LIGHT
  HOA = HOA SELECTOR SWITCH
- S_{T2} = MANUAL MOTOR STARTER, TWO POLE WITH OVERLOADS
  P = PILOT LIGHT
  HOA = HOA SELECTOR SWITCH
- S_{T3} = MANUAL MOTOR STARTER, THREE POLE WITH OVERLOADS
  PILOT LIGHT
  HOA = HOA SELECTOR SWITCH
- S_{M3} = MANUAL MOTOR STARTER, THREE POLE WITHOUT OVERLOADS
- = DISCONNECT, SEE DISCONNECT SCHEDULE FOR SPECS
- C# = CONTACTOR, ELECTRICALLY HELD
- TC = TIME CLOCK
- = PUSHBUTTON CONTROL STATION
  ST = START
  SP = STOP
  P = PILOT
  SS = SELECTOR (ON/OFF)
  LOS = STOP W/LOCKOUT DEVICE
  ROL = REMOTE OFF LOCAL
  HOA = HAND OFF AUTO
  EM = EMERGENCY OFF/STOP
- FS = CONTROL SWITCH DEVICE
  LS = FLOAT/LEVEL SWITCH
  QS = TIME SWITCH
  PE = PNEUMATIC / ELECTRIC SWITCH
  PT = PRESSURE TRANSMITTER (ON/OFF)
  TS = TEMPERATURE SWITCH
  MS = MOTION DETECTION SWITCH
  ZS = LIMIT SWITCH
  PS = PRESSURE SWITCH
  EP = ELECTRIC / PNEUMATIC SWITCH
  FS = FLOW SWITCH
  OS = TORQUE SWITCH
- = FIELD INSTRUMENT
- = ELECTRIC MOTOR
  F = FRACTIONAL HORSEPOWER
- = ELECTRIC UNIT HEATER
- DM = DAMPER MOTOR
- T = THERMOSTAT
- M = UTILITY METER
- = UTILITY POLE
- J = JUNCTION BOX, SIZE AS REQUIRED, FOR CONNECTION OF DEVICE IF NOTED.
- = JUNCTION BOX, WALL MOUNTED, RECESSED. FOR CONNECTION OF DEVICE IF NOTED.
- = JUNCTION BOX, FLOOR MOUNTED, RECESSED. FOR CONNECTION OF DEVICE IF NOTED.
- GH = GASKET HEATER
- SV = SOLENOID VALVE
- MH = MANHOLE
- HH = HANDHOLE
- MOV = ELECTRIC MOTOR OPERATED VALVE

WIRING DEVICES:

- S = SINGLE POLE SWITCH
- S_{LV} = LOW VOLTAGE WALL STATION
- S_{LV2} = LOW VOLTAGE WALL STATION, # INDICATES THE NUMBER OF BUTTONS
- S_{+C} = SINGLE POLE SWITCH W/ 0-10V CONTROLS
- S_{D+C} = DIMMER SWITCH W/ 0-10V CONTROLS
- S_2 = DOUBLE POLE SWITCH
- S_3 = THREE-WAY SWITCH
- S_4 = FOUR-WAY SWITCH
- S_{WP} = WEATHER PROOF SWITCH
- S_K = KEY OPERATED SWITCH, SINGLE POLE U.N.O.
- S_P = SWITCH WITH PILOT LIGHT
- S_D = DIMMER SWITCH
- S_{MC} = MOMENTARY CONTACT SWITCH
- S_A = SINGLE POLE SWITCH CONTROLS FIXTURES WITH SAME LETTER DESIGNATION (TYP. FOR ALL SWITCHES ABOVE)
- S_O = MOTION SENSOR WALL SWITCH (OCCUPANCY SENSOR)
- OS = MOTION SENSOR SWITCH CEILING MTD (OCCUPANCY SENSOR)
- = MOTION SENSOR CORNER MTD (OCCUPANCY SENSOR)
- J = JUNCTION BOX W/ POWER PACK FOR CEILING MTD MOTION SENSOR(S)
- DL = DAY LIGHT SENSOR
- = SIMPLEX RECEPTACLE
- = DUPLEX RECEPTACLE
  GFI = GROUND FAULT INTERRUPTER
  TL = TWIST LOCKING
  WP = WEATHERPROOF, USE IN USE TYPE COVERS
  48" = MOUNTING HEIGHT A.F.F.
  CR = CORROSION RESISTANT
  T = TABLETOP MOUNTED RECEPTACLE
  C = MOUNT DEVICE ABOVE COUNTER
  TR = TAMPER RESISTANT
  IG = ISOLATED GROUNDT
  HG = HOSPITAL GRADE
- = QUAD RECEPTACLE
- = DUPLEX RECEPTACLE, CONNECTED TO THE EMERGENCY SYSTEM
- = SPECIAL RECEPTACLE, TO MATCH EQUIPMENT
- = DUPLEX RECEPTACLE, SPLIT WIRED
- = DUPLEX SPECIAL PURPOSE RECEPTACLE
- USB = RECEPTACLE W/ USB CHARGING PORT
- = RECEPTACLE/CLOCK HANGER OR CLOCK/SPEAKER
- = FLOOR OUTLET SIMPLEX RECEPTACLE
- = FLOOR OUTLET DUPLEX RECEPTACLE SPECIAL PURPOSE CONNECTION OR PROVISION FOR CONNECTION
- = COMBINATION RECEPTACLE AND TELEPHONE / DATA FLOOR BOX FLUSH MOUNTED UNLESS OTHERWISE NOTED
- = DUPLEX RECEPTACLE, CEILING MOUNTED
- PP = POWER / TELEPHONE / DATA POWER POLE
- ADO = AUTOMATIC POWERED DOOR OPERATOR
- DP = AUTOMATIC POWERED DOOR OPERATOR PUSH PLATE, WALL MOUNTED

BURG., ACCESS, & CCTV LEGEND:

- C = DOOR CONTACTS
- M_X = MOTION DETECTORS
  R = REQUEST TO EXIT
  LR = LONG RANGE
- K = BURGLAR ALARM KEYPADS
- S = SIREN
- DS = DOOR STRIKE
- RM = READER INTERFACE MODULE
- C = CAMERAS (1-EXTERIOR, 3-INTERIOR)
- R = CARD READERS
- G = GLASS BREAK DETECTOR
- ACC = BURGLAR ACCESS WIRING
- LX = BURGLAR LX BUS WIRING
- KEY = BURGLAR KEY WIRING
- CCTV = CCTV WIRING
- CX = COAX WIRING
- FO = FIBER OPTIC WIRING
- CAT 5E = CAT 5E WIRING
- CAT 6 = CAT 6 WIRING

FIRE ALARM / SECURITY SYMBOLS:

- FACP = FIRE ALARM CONTROL PANEL
- AVPS = AUDIO VISUAL POWER SUPPLY
- FAAP = FIRE ALARM ANNUNCIATOR PANEL
- AMP = VOICE EVAC. AMPLIFIER
- PS = PULL STATION
- W = WATER FLOW CONNECTION
- T = VALVE TAMPER CONNECTION
- F = FARMOSTAT (LOW TEMP)
- A = LOW AIR CONNECTION
- H = HEAT DETECTOR
- S = SMOKE DETECTOR W/ AUDIBLE BASE
- S = SMOKE DETECTOR
- CO = CARBON MONOXIDE DETECTOR
- D = DUCT SMOKE DETECTOR
- I = INPUT MODULE
- I_2 = 2 INPUT MODULE
- I_{10} = 10 INPUT MODULE
- N = NOTIFICATION (Control) MODULE
- R = RELAY MODULE
- R_6 = 6 RELAY MODULE
- HS = HORN / SPEAKER STROBE (CEILING MOUNTED)
- = STROBE (CEILING MOUNTED)
- = WALL MOUNTED STROBE
- F = WALL MOUNTED HORN
- F = WALL MOUNTED HORN/STROBE
- DH = DOOR HOLDER
- SLC = SIGNAL LINE CIRCUIT
- NC = NOTIFICATION CIRCUIT
- SBUS = SBUS CIRCUIT

DATA DEVICES:

- = SINGLE DATA
- 2 = DATA - NUMBER INDICATES NUMBER OF TERMINATIONS
- = SINGLE VOICE
- 2 = VOICE - NUMBER INDICATES NUMBER OF TERMINATIONS
- = SINGLE DATA / SINGLE VOICE
- V2 D2 = DATA / VOICE
  LETTER INDICATES DATA OR VOICE
  NUMBER INDICATES NUMBER OF TERMINATIONS
- W = WALL PHONE
- = SURFACE MOUNT SPEAKER
- = FLOOR BOX SINGLE DATA
- = FLOOR BOX SINGLE VOICE
- = FLOOR BOX DATA / VOICE
- P = CEILING PROJECTOR
- WAP = CEILING WIRELESS ACCESS POINT
- = CROSS-CONNECT
- = ANTENNA
- V = VOLUME CONTROL
- TV = CATV
- = CEILING SPEAKER
- XXX = CROSS CONNECT FIELDS
- PPNL = PATCH PANEL
- MC = MAIN CROSS CONNECT
- IC = INTERMEDIATE CROSS CONNECT
- TR = TELECOMMUNICATIONS ROOM
- ER = EQUIPMENT ROOM
- EF = ENTRANCE FACILITY
- TC = TELECOMMUNICATIONS CABINET
- TE = TELECOMMUNICATIONS ENCLOSURE
- CP = CONSOLIDATION POINT
- = SLEEVE (SIZE)
- = GROUND
- J = JUNCTION BOX

DRAWING LIST

10/05/2016 - AS-BUILT

DWG. NO.	DRAWING NAME	REV. NO.	DATE
	ELECTRICAL		
E001	COVER SHEET - ELECTRICAL		10/05/2016
E002	GENERAL NOTES - ELECTRICAL		10/05/2016
E011	SITE PLAN - ELECTRICAL	1	10/05/2016
E011F	SITE PLAN - FOOT-CANDLE LEVELS	1	10/05/2016
E501	ONE LINE DIAGRAM AND SCHEDULES - ELECTRICAL		10/05/2016

Gettle
ELECTRICAL
AUTOMATION
INFRASTRUCTURE
DATACOM
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Giving business the power to grow®
ph. 325 Busser Road, PO Box 337, Emigsville, PA 17318-0337 main: 717-843-1231
144 Lakefront Drive, Hunt Valley, MD 21030 main: 410-329-2084
Gettle.com

TRADEPOINT ATLANTIC
AUTOMOTIVE & RO-RO DISTRIBUTION FACILITY
SPARROWS POINT
BALTIMORE, MARYLAND
COVER SHEET - ELECTRICAL

		BY
	AS-BUILT	TLM
10-05-2016	DATE	
No.	REVISION	

DRAWN BY: TLM	CHECKED BY: GAM	JOB NUMBER: 163722-11	-
SCALE: AS NOTED	DATE: 7/21/15	FILE:	

E001
SHEET NUMBER

TRUE SHEET SIZE 30"x42"

10/5/2016 11:55 AM J:\2016 Jobs and Bids – Electrical\163722-11 RoRO ARCO,tradepoint RORO areas lighting,03-10-16\Drawings\E001 COVER SHEET - ELECTRICAL.dwg
TMUNDIS

GENERAL PROJECT NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY FOR THE INSTALLATION OF THE COMPLETE ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS. ELECTRICAL CONTRACTOR SHALL VISIT AND BECOME ACQUAINTED WITH ALL EXISTING CONDITIONS.

2. THE ELECTRICAL INSTALLATION FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AND OF THE CODE OF THE LOCAL AUTHORITY HAVING JURISDICTION.

3. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS INSPECTIONS, AND/OR LICENSES REQUIRED FOR THE EXECUTION OF THE WORK SHOWN ON THESE DRAWINGS.

4. THE DRAWINGS ARE DIAGRAMMATIC, INTENDING TO SHOW GENERAL RUNS AND LOCATIONS OF EQUIPMENT AND SPECIALITIES, AND DO NOT NECESSARILY SHOW ALL REQUIRED OFFSETS, SPACING REQUIREMENTS, ETC. ADJUSTMENTS IN EXACT PANELBOARD, TRANSFORMER, DISCONNECT, SWITCHES, CONDUIT, ETC. LOCATIONS MAY BE NECESSARY TO AVOID CONFLICT WITH OTHER TRADES AND COMPLY WITH ALL WORKING CLEARANCES AS REQUIRED BY THE NATIONAL ELECTRIC CODE AND MANUFACTURER'S EQUIPMENT REQUIREMENTS. WORK THAT IS NOT EXPLICITLY DETAILED ON THE DRAWINGS OR THAT WHICH APPEARS BELOW ANY AND ALL CODE COMPLIANCE REQUIREMENTS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR EVALUATION.

5. ALL WORK SHALL BE PERFORMED IN A NEAT, WORKMANLIKE, AND SAFE MANNER. ALL WORK MUST BE IN STRICT ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS.

6. ALL FABRICATED ASSEMBLIES AND MANUFACTURED ITEMS OF ELECTRICALLY OPERATED EQUIPMENT SHALL BE UL LISTED AND CONFORM TO FACTORY MUTUAL STANDARDS IF APPLICABLE.

7. ELECTRICAL CONTRACTOR SHALL PROVIDE NAMEPLATES ON ALL SWITCHGEAR, SWITCHBOARDS, PANELBOARDS, DISCONNECTS, ATS SWITCHES, TRANSFORMERS, INDICATING EQUIPMENT NAME, VOLTAGE, POWER SOURCE, EQUIPMENT BEING FED, ETC.

SAFETY SWITCHES:

1. SAFETY SWITCHES SHALL BE OF SIZE SHOWN ON DRAWINGS, FUSIBLE AS REQUIRED, AND CONTAINED IN A GENERAL PURPOSE ENCLOSURE. ALL SWITCHES SHALL NE NEMA HEAVY DUTY TYPE HD AND QUICK-MAKE, QUICK-BREAK OPERATING.

2. ALL SAFETY SWITCHES SHALL BE OF PROPER RATING AND HAVE DUAL INTERLOCKS DESIGNED TO INTERLOCK SWITCH DOOR WITH OPERATING MECHANISM. AN ARRANGEMENT SHALL BE PROVIDED FOR LOCKING SWITCH HANDLE IN "ON" OR "OFF" POSITION.

3. WHERE USED OUTDOORS, SWITCHES SHALL BE NEMA 3R, RAINTIGHT CONSTRUCTION.

CONVENIENCE RECEPTACLES:

1. CONVENIENCE RECEPTACLES SHALL BE SPECIFICATION GRADE, NEMA STANDARD DUPLEX, RATED 20 AMPS, 120 VOLT, 3 WIRE, GROUNDING TYPE FOR PARALLEL-BLADE 2 AND 3 PRONG ATTACHMENT CAPS. ALL RECEPTACLES SHALL BE ENCLOSED IN A HIGH HEAT, NON-FLAMMABLE, NON-HYDROSCOPE MOLDED COMPOUND CAST PROVIDED WITH WIDE PLASTER EARS. EACH TERMINAL SHALL BE PROVIDED WITH THE BINDING SCREWS LOCATED ON THE RECEPTACLE SIDE AND SO ARRANGED THAT BACK OF SIDE WIRING IS POSSIBLE.

2. WEATHERPROOF RECEPTACLES SHALL BE STANDARD UNITS WITH WEATHERPROOF COVER. OUTDOOR RECEPTACLES SHALL BE GFI DUPLEX RECEPTACLES.

3. GFI RECEPTACLES SHALL BE USED IN ALL LOCATIONS REQUIRED BY THE NEC.

GROUNDING:

1. ALL EQUIPMENT AND SYSTEMS SHALL BE BONDED AND GROUNDED IN ACCORDANCE WITH THE NEC, UTILITY REQUIREMENTS, AND ANY LOCAL REQUIREMENTS.

2. ALL CONNECTIONS TO APPARATUS AND CONDUITS SHALL BE MADE WITH SOLDERLESS CONNECTORS. CONNECTORS SHALL BE SECURELY BOLTED OR CLAMPED TO THE EQUIPMENT. ALL CONTACT SURFACES SHALL BE THOROUGHLY CLEANED BEFORE CONNECTIONS ARE MADE TO ENSURE A GOOD METAL TO METAL CONTACT.

SWITCHGEAR, SWITCHBOARDS, PANELBOARDS, MOTOR CONTROL CENTERS

1. ALL SWITCHGEAR, SWITCHBOARDS, AND PANELBOARDS SHALL BE THE SIZE AND CONTAIN THE NUMBER OF CIRCUIT BREAKERS AS INDICATED ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR AND ALL OTHER EQUIPMENT SUPPLIERS TO ENSURE THE SIZES OF THE CIRCUIT BREAKERS SHOWN ON THE ONE-LINE DIAGRAM AND PANEL SCHEDULES ARE CORRECT PRIOR TO ORDERING.

2. THE AIC OR SCCR RATINGS OF ALL EQUIPMENT SUPPLIED BY THE ELECTRICAL CONTRACTOR WHICH INCLUDES SWITCHGEAR, SWITCHBOARDS, PANELBOARDS, ATS SWITCHES, MOTOR CONTROL CENTERS, ETC., AS CALLED OUT ON THE ONE LINE DIAGRAM IS PRELIMINARY AND SHALL BE VERIFIED BY A SHORT CIRCUIT STUDY CONDUCTED OR SUPPLIED BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL SUPPLY EQUIPMENT WITH AN AIC OR SCCR RATING THAT IS ADEQUATE BASED ON THE RESULTS OF THE SHORT CIRCUIT STUDY. THE SHORT CIRCUIT STUDY SHALL BE CONDUCTED BASED ON AVAILABLE FAULT CURRENT PROVIDED BY THE LOCAL UTILITY.

3. ALL PANELBOARDS SHALL BE SUPPLIED WITH A FULLY RATED AIC RATING UNLESS NOTED OTHERWISE ON THE DRAWINGS. ALL SERIES RATED PANELBOARDS AND DEVICES SHALL BE LABELED PER NEC 110.22 (A),(B),(C).

4. ALL PANELBOARDS FED FROM K-RATED TRANSFORMERS SHALL BE SUPPLIED WITH 200% RATED NEUTRAL KITS.

5. CONTRACTOR SHALL LABEL THE SERVICE EQUIPMENT WITH THE MAXIMUM AVAILABLE FAULT CURRENT PER NEC 110.24.

6. ALL PANELBOARDS SHALL BE SUPPLIED WITH AN ENCLOSURE SUITABLE FOR THE ENVIRONMENT.

7. ALL PANELBOARDS CIRCUITS FOR POWER AND LIGHTING SHALL SHALL BE CONNECTED IN SUCH MANNER THAT THE CONNECTED LOADS WILL BALANCE AS CLOSELY AS PRACTICAL, THE ELECTRICAL CONTRACTOR SHALL CORRECT ANY UNFAVORABLE LOAD CONDITION IN ANY PART OF THE ELECTRICAL SYSTEM.

8. IN GENERAL, ALL CABINETS SHALL BE INSTALLED SO THAT THE OPERATING HANDLE OF THE TOP CIRCUIT BREAKER WILL NOT EXCEED 78" ABOVE FINISHED FLOOR AND THE CABINET SHALL NOT BE LESS THAN 12" ABOVE FINISHED FLOOR.

9. ALL PANELBOARDS SHALL BE MOUNTED IN A SHEET STEEL ENCLOSING CABINET DESIGNED FOR SURFACE OR FLUSH MOUNTING AS CALLED OUT OR SHOWN ON THE DRAWINGS.

10. MOTOR CONTROLLERS FURNISHED SHALL CONFORM TO THE LATEST APPLICABLE NEMA STANDARDS FOR TYPE, SIZE, AND DUTY AS SPECIFICALLY APPLIED. MAGNETIC CONTROLLERS SHALL PROVIDE THERMAL OVERLOAD PROTECTION IN EACH LINE.

11. ANY MOTOR OUT OF SITE OF ITS CONTROLLER AND ANY CONTROLLER OUT OF SIGHT OF ITS BRANCH BRANCH CIRCUIT BREAKER SHALL BE PROVIDED WITH A DISCONNECTING SWITCH IN ACCORDANCE WITH ARTICLE 430 OF THE NEC.

JUNCTION AND PULL BOXES

1. JUNCTION AND PULL BOXES SHALL NOT BE PLACED IN LOCATIONS MADE INACCESSIBLE BY PIPING, DUCTS, CONDUITS, OR OTHER EQUIPMENT.

2. JUNCTION AND PULL BOXES SHALL HAVE A UL LABEL, MANUFACTURER'S LABEL, AND A LABEL THAT SPECIFIES THE GAUGE THICKNESS.

3. JUNCTION AND PULL BOXES SHALL BE OF RIVETED OR WELDED STEEL CONSTRUCTION AND HAVE PLAIN SHEET METAL SCREW-ATTACHED COVERS. FLUSH MOUNTED BOXES SHALL BE FITTED WITH A COVER THAT OVERLAPS THE BOX 1" ALL AROUND.

OUTLET BOXES

1. OUTLET BOXES SHALL BE SHEET STEEL, ZINC COATED, AND BE OF A CLASS TO SATISFY THE INTENDED REQUIREMENT.

2. CONCEALED OUTLET BOXES SHALL BE NOT LESS THAN FOUR INCHES SQUARE OR RECTANGULAR AND PROVIDED WITH THE PROPER SIZE KNOCKOUTS FOR THE CONDUITS USED. ALL UNUSED KNOCKOUTS REMAIN CLOSED. BOXES IN PLASTER CONSTRUCTION SHALL BE PROVIDED WITH APPROVED COVERS OR PLASTER RINGS.

3. BOXES SHALL BE OF UNIT CONSTRUCTION AND OF SIZE REQUIRED FOR THE NUMBER OF DEVICES SHOWN. THE SHAPE OF THE BOX SHALL BE SUCH AS TO PERMIT SURFACING MATERIAL TO BE CUT IN STRAIGHT LINES AND TO FIT CLOSELY AROUND THE BOX. THE BOX SHALL BE SO PLACED THAT THE COVER PLATE WILL BE FLUSH WITH THE FINISHED WALL SURFACE.

4. ALL BOXES FOR LIGHTING OUTLETS SHALL BE ROUND OR OCTAGONAL AND PROVIDED WITH FIXTURE STUDS OF A SIZE SUITABLE FOR THE WEIGHT OF THE FIXTURE TO BE SUPPORTED. IN NO CASE SHALL THE FIXTURE STUD BE LESS THAN 3/8 INCH. THE STUD SHALL BE INTEGRAL WITH THE BOX.

5. OUTLET BOXES USED FOR EXTERIOR OUTLETS OR FOR EXPOSED INTERIOR CONDUIT RUNS SHALL BE OF CAST RUST RESISTING METAL. GASKET COVERS SHALL BE PROVIDED WHERE THE OUTLET IS EXPOSED TO WEATHER OR MOISTURE.

TRANSFORMERS:

1. UNLESS OTHERWISE NOTED, TRANSFORMERS SHALL BE GENERAL PURPOSE, DRY TYPE, 150-DEGREE CELSIUS RISE, VENTILATED, OR IN THE APPROPRIATE ENCLOSURE FOR THE AREA.

2. FOR TRANSFORMERS WITH A K-RATING, ELECTRICAL CONTRACTOR TO SUPPLY A TRANSFORMER FROM A MANUFACTURER WITH A K-RATING TO WITHSTAND NON-LINEAR LOADS THAT MEET OR EXCEED THE K-RATING AS CALLED OUT ON THE DRAWINGS.

3. TRANSFORMERS INSTALLATION TO COMPLY WITH ALL REQUIREMENTS OF NEC ARTICLE 450 AND THE REQUIREMENTS OF THE TRANSFORMER MANUFACTURER. ONLY TRANSFORMERS 45 KVA AND AND SMALLER SHALL BE INSTALLED IN HOLLOW SPACES ABOVE CEILINGS PROVIDED PROPER VENTILATION REQUIREMENTS ARE MET PER NEC 450,13 (B).

WIRING, CABLE, AND CONDUIT SYSTEMS:

1. ALL BRANCH CIRCUIT WIRING SHALL BE TYPE THHN/THWN-2 600 VOLT COPPER CONDUCTORS COLOR CODED PER NEC REQUIREMENTS. MINIMUM SIZE CONDUCTOR FOR BRANCH CIRCUITS SHALL BE #12. ALL #10 AND SMALLER WIRE SHALL BE SOLID, ALL #8 AND LARGER WIRE SHALL BE STRANDED. ALL FEEDER CIRCUIT WIRING SHALL BE TYPE THHN/THWN-2 600 VOLT COPPER 600 VOLT COPPER CONDUCTORS COLOR CODED PER NEC REQUIREMENTS. ALUMINUM TYPE XHHW-2 WIRE SHALL BE PERMITTED FOR FEEDERS IS SHOWN ON THE ONE LINE DRAWING PROVIDED IT IS ACCEPTABLE PER EQUIPMENT MANUFACTURER'S INSTRUCTIONS AND PROVIDED AN ANTIOXIDANT COMPOUND THAT IS LISTED AND APPROVED FOR THE SPECIFIC USE IS APPLIED TO ALL ALUMINUM FEEDER TERMINATION POINTS.

2. CONDUCTOR SIZES INDICATED ON DRAWINGS ARE BASED ON USING THE 75-DEGREE CELSIUS COLUMN OF NEC AMPACITY TABLES AND ARE BASED ON EQUIPMENT USED IN 100 AMP AND LESS CIRCUITS BEING BEING SUPPLIED FROM THE MANUFACTURER WITH TERMINATION LUGS MARKED AND RATED 75-DEGREE CELSIUS. IF 100 AMP OR LESS EQUIPMENT OR CIRCUITS ARE NOT SUPPLIED WITH 75-DEGREE CELSIUS MARKED AND RATED LUGS, THE CONTRACTOR SHALL SUPPLY WIRE FROM THE 60-DEGREE CELSIUS COLUMN ON THE NEC AMPACITY TABLES AND MODIFY THE CONDUIT SIZE TO MEET NEC REQUIRED CONDUIT FILL. LIGHTING AND RECEPTACLE POWER CIRCUITS CAN BE COMBINED AND RUN IN A SINGLE 3/4" CONDUIT.

3. AT ELECTRICAL CONTRACTOR'S DISCRETION, A MAXIMUM NUMBER OF FOUR (4) SINGLE POLE 20 AMP BRANCH LIGHTING AND RECEPTACLE POWER CIRCUITS CAN BE RUN IN A SINGLE, PROPERLY SIZED CONDUIT. FEEDER CIRCUITS SHALL NOT BE COMBINED INTO A SINGLE CONDUIT UNLESS WRITTEN PERMISSION IS PROVIDED BY THE ENGINEER.

4. ALL CONDUITS SHALL MEET INSTALLATION REQUIREMENTS OF THE NEC. BURIED OR CONCRETE ENCASED CONDUITS SHALL BE PVC. EMT SHALL BE BE USED ON ABOVE GROUND CIRCUITS WHERE IT IS NOT SUBJECT TO DAMAGE. WHERE CONDUIT IS SUBJECT TO DAMAGE, GALVANIZED RIGID CONDUIT SHALL BE USED. BUSHED ARMORED MC CABLE MAY BE USED IN CONCEALED AREAS FOR LIGHTING AND POWER WHERE WHERE AS PERMISSIBLE BY CODE. GENERALLY, CONDUITS SHALL BE INSTALLED CONCEALED IN THE BUILDING CONSTRUCTION AS STRAIGHT AND DIRECT AS POSSIBLE. CONDUITS INSTALLED AND EXPOSED SHALL BE INSTALLED AT RIGHT ANGLES TO, AND OR PARALLEL WITH BUILDING LINES.

5. ALL CONDUITS SHALL BE SECURELY SUPPORTED FROM BUILDING STRUCTURE IN PROPER INTERVALS WITH STRAPS AND HANGERS APPROVED FOR USE AND AS REQUIRED BY THE NEC.

6. ALL CONDUIT FITTINGS SHALL BE APPROVED TYPE. COUPLINGS AND CONNECTIONS SHALL BE COMPRESSED TYPE FOR EMT AND THREADED TYPE FOR RIGID CONDUIT.

7. A SEPARATION OF AT LEAST 6" SHALL BE MAINTAINED BETWEEN CONDUITS AND HOT WATER/ STEAM LINES.

8. CONDUITS TERMINATING IN STEEL BOXES SHALL BE PROVIDED WITH APPROVED SLIP JOINT FITTINGS WHERE THEY PASS THROUGH EXPANSION JOINTS.

9. FOR MOTORS AND EQUIPMENT REQUIRING FLEXIBLE CONDUIT (NOT INCLUDING LIGHTING FIXTURES), CONDUIT SHALL BE LIQUID TYPE, AND NOT SHALL NOT EXCEED 18".

10. SEALING FITTINGS AND APPROVED SEALING COMPOUND SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC. SEAL ALL CONDUIT PENETRATIONS OF FIRE-RATED WALLS WITH AN APPROVED COMPOUND. PROVIDE RUBBER BOOT, FLASHING, CAULKING, ETC., TO PROVIDE A WEATHERPROOF INSTALLATION. ELECTRICAL CONTRACTOR SHALL NOT CUT, MODIFY, BURN, OR DAMAGE ANY REINFORCING ROOFING STEEL UNLESS PRIOR AUTHORIZATION HAS BEEN GIVEN BY THE STRUCTURAL ENGINEER.

11. THE CONDUCTOR SIZES TO ROOF MOUNTED EQUIPMENT ARE BASED ON THE LENGTH OF ANY EXPOSED CONDUITS NOT EXCEEDING 10' OR 10% OF THE TOTAL CONDUIT RUN TO A SPECIFIC PIECE OF EQUIPMENT. IF THIS LENGTH IS EXCEEDED, ELECTRICAL CONTRACTOR SHALL CONTACT THE ENGINEER FOR PROPER CONDUCTOR DERATING DUE TO POTENTIAL HIGH ROOF TEMPERATURES WHICH MAY REQUIRE CONDUCTOR AND/OR CONDUIT SIZE CHANGES. HORIZONTAL CONDUCTOR RUNS ON A ROOF SHALL BE 6" MINIMUM ABOVE THE ROOF AT ALL POINTS.

12. ALL CONDUCTOR SPLICING SHALL BE DONE IN OUTLET BOXES OR JUNCTION BOXES, AND NOT IN CONDUITS. SPLICES OF #10 WIRE AND SMALLER SHALL BE MADE WITH AN APPROVED PRESSURE CONNECTOR AND INSULATOR CAP. CONDUCTOR SPLICING OF #8 AND LARGER SHALL BE MADE OF COMPRESSION TYPE SLEEVES, INSTALLED WITH PROPER TOOLS, AND INSULATED TO THE SAME AS THE ORIGINAL INSULATION WITH AN APPROVED TYPE TAPE HAVING HIGH DIELECTRIC STRENGTH.

13. IN GENERAL, ALL FEEDER CONDUCTORS SHALL BE SELECTED BASED ON A VOLTAGE DROP NOT TO EXCEED 2%, IN GENERAL, ALL BRANCH CONDUCTORS SHALL BE SELECTED BASED ON A VOLTAGE DROP NOT TO EXCEED 3%. GENERAL PURPOSE 120 VOLT RECEPTACLE CIRCUITS SHALL UTILIZE #12 CONDUCTORS FOR EACH BRANCH UP TO A LENGTH OF 75', #10 CONDUCTORS FOR A EACH BRANCH CIRCUIT OVER 75' UP TO A LENGTH OF 160', AND #8 CONDUCTORS FOR EACH BRANCH CIRCUIT OVER 160' UP TO A LENGTH OF 230'. REFER TO NOTES ON DRAWINGS FOR VARIATIONS OF THESE CONDUCTOR SIZES BASED ON AMPERAGES OF EACH CIRCUIT.

LIGHTING:

1. INSTALL EMERGENCY AND EXIT LIGHTING AS SHOWN ON THE DRAWINGS THAT MEET ALL REQUIRED CODES. EMERGENCY LIGHTING AND EXIT SIGN FIXTURES SHALL BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.

2. LIGHTING FIXTURES LOCATED ON EXTERIOR OF BUILDING SHALL BE OF WEATHERPROOF CONSTRUCTION, GASKETED, AND INSTALLED WITH NON-FERROUS METAL SCREWS FINISHED TO MATCH THE FIXTURE.

3. FLUSH MOUNTED RECESSED FIXTURES SHALL BE INSTALLED SO AS TO COMPLETELY ELIMINATE LIGHT LEAKAGE BETWEEN THE FRAME.

4. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY ADDITIONAL AUXILIARY SUPPORTING STEEL FOR FIXTURES NOT MOUNTED ON BUILDING FRAMEWORK, AND WHERE NECESSARY TO SPAN THE CEILING SUPPORT MEMBERS.

5. WHERE FIXTURES ARE EQUIPPED WITH ADDITIONAL SOCKETS FOR EMERGENCY LAMPS, THE SOCKETS SHALL BE WIRED WITH SEPARATE WIREWAYS, IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEC. FIXTURES SHALL BE APPROVED FOR THE PURPOSE.

LOCAL SWITCHES:

1. LOCAL WALL SWITCHES SHALL BE HEAVY DUTY, SPECIFICATION GRADE, NEMA STANDARD, FLUSH, QUIET-OPERATING TUMBLER TYPE RATED 20 AMPS, 120/277 VOLTS, ALL WALL SWITCHES SHALL HAVE PLANTER EARS AND BE SINGLE OR MULTIPLE POLE AS REQUIRED OR INDICATED ON DRAWINGS.

FIRE ALARM SYSTEM:

1. NOT PART OF THIS SCOPE OF WORK.

MOUNTING HEIGHTS - U.N.O.

- SWITCH = 42"
- RECEPTACLE (OFFICE) = 18"
- RECEPTACLE (MANUFACTURING/WAREHOUSE) = 48"
- FIRE ALARM PULL STATION = 42"
  HORN STROBE = 80"
  STROBE = 80"
- WALL SCONCE = 66"
- COMMUNICATION OUTLETS (OFFICE) = 18"
- COMMUNICATION OUTLETS (MANUFACTURING/WAREHOUSE) = 48"
- DISCONNECT SWITCH - 66" TO TOP OF HANDLE
- PANEL - 66" TO TOP OF PANEL
- DOCKLIGHT - 72"
- LIGHT FIXTURE - SEE FIXTURE SCHEDULE

CODE REFERENCES

PENNSYLVANIA

- NEC 2008
- IECC 2009
- NFPA 72 2016

MARYLAND

- NEC 2014
- IECC 2015
- NFPA 72 2016

ABBREVIATIONS

AIC = AMPERE INTERRUPTING CAPACITY
AFF = ABOVE FINISHED FLOOR
AFG = ABOVE FINISHED GRADE
AHJ = AUTHORITY HAVING JURISDICTION
ATS = AUTOMATIC TRANSFER SWITCH
BFF = BELOW FINISHED FLOOR
BFG = BELOW FINISHED GRADE
CB = CIRCUIT BREAKER
CR = CORROSION RESISTANT
C&T = COMPUTER AND TELEPHONE PARTITION CONNECTION
DC = DOOR CONTACTS (CONDUIT & PULL WIRE ONLY)
DH = DUCT HEATER
DL = DOCK LEVELER
DM = DAMPER MOTOR
EC = ELECTRICAL CONTRACTOR
EXP = EXPLOSION PROOF
GC = GENERAL CONTRACTOR
GEC = GROUNDING ELECTRODE CONDUCTOR
GFI = GROUND FAULT INTERRUPTER
GRC = GALVANIZED RIDGED CONDUIT
HP = HEAT PUMP
MBJ = MAIN BONDING JUMPER
MC = MECHANICAL CONTRACTOR
MCC = MOTOR CONTROL CENTER
MCP = MOTOR CIRCUIT PROTECTOR
MDP = MAIN DISTRIBUTION PANELBOARD
MDS = MAIN DISTRIBUTION SWITCHBOARD
MH = MOUNTING HEIGHT
MOD = MOTOR OPERATED DAMPER
NEC = NATIONAL ELECTRICAL CODE
NL = NIGHT LIGHT
OD = OVERHEAD DOOR
OE = OVERHEAD ELECTRIC
OT = OVERHEAD TELEPHONE
P = PARTITION POWER CONNECTION
PC = PLUMBING CONTRACTOR
SBJ = SYSTEM BONDING JUMPER
SCCR = SHORT CIRCUIT CURRENT RATING
SDS = SEPERATELY DERIVED SYSTEM
SSBJ = SUPPLY SIDE BONDING JUMPER
SSRVS = SOLID STATE REDUCED VOLTAGE STARTER
STP = SHIELDED TWISTED PAIR, #16 AWG
TL = TWIST LOCK
UE = UNDERGROUND ELECTRIC
UH = UNIT HEATER
UNO = UNLESS NOTED OTHERWISE
VFD = VARIABLE FREQUENCY DRIVE
VR = VEHICLE RESTRAINT
WC = WATER COOLER (ELECTRIC)
WCH = WALL CONVECTION HEATER
WH = WATER HEATER
WP = WEATHERPROOF
WPB = WEATHER-PROOF & CORROSION RESISTANT

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BALTIMORE, MARYLAND
GENERAL NOTES - ELECTRICAL

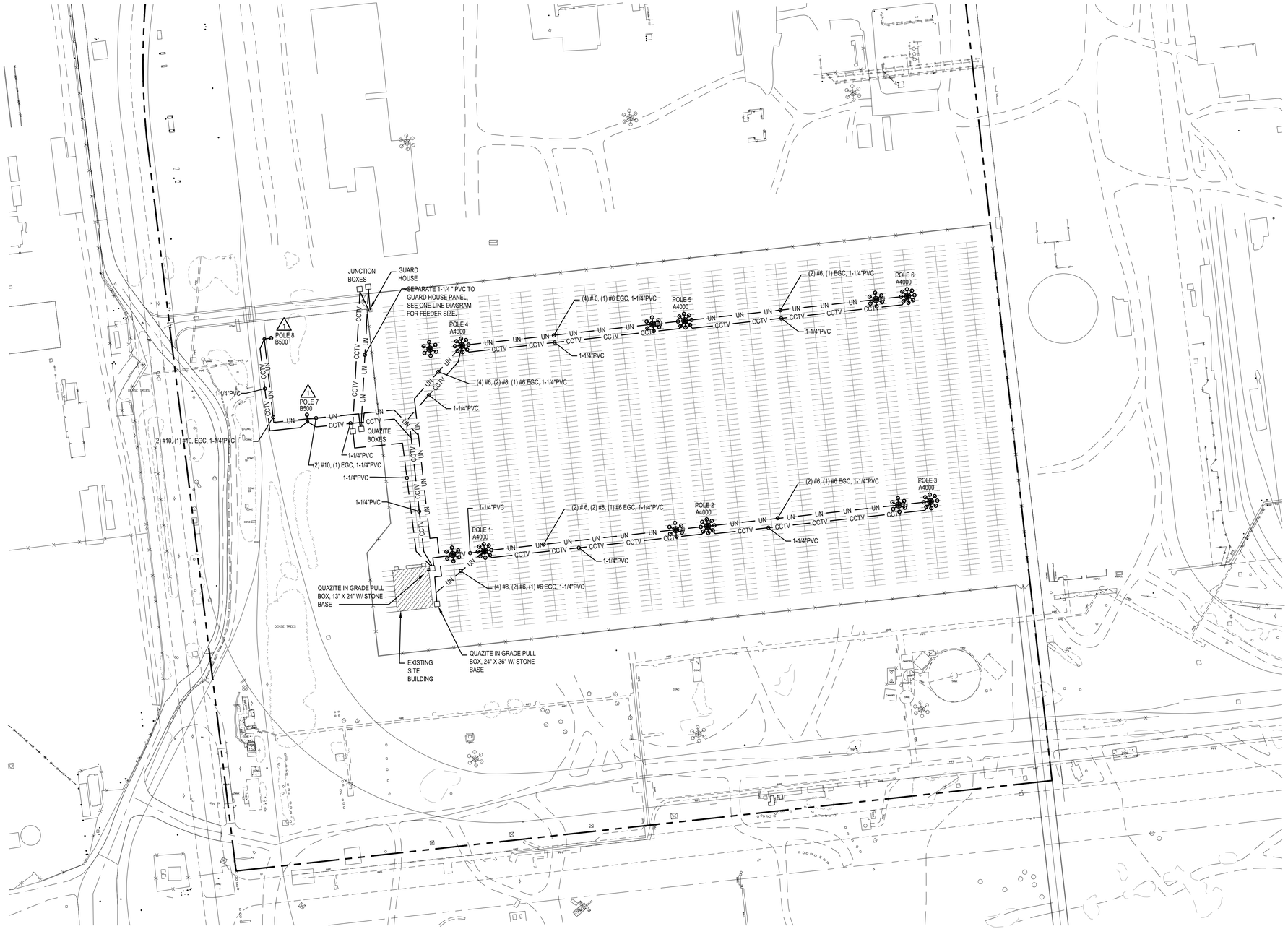
No.	DATE	REVISION	BY
	10-05-2016	AS-BUILT	TLM

DRAWN BY: TLM
CHECKED BY: GAM
SCALE: AS NOTED
DATE: 7/23/19
JOB NUMBER: 163722-11
FILE: -

E002
SHEET NUMBER

TRUE SHEET SIZE 30"x42"

10/5/2016 11:55 AM TIMUNDS
J:\2016 Jobs and Bids – Electrical\163722-11 RJD ARCO\tradepoint\RORO area lighting (03-10-16)\Drawings\E002 GENERAL NOTES - ELECTRICAL.dwg



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1 / E011 SITE PLAN - ELECTRICAL

1" = 100'

NOTES

1. REFER TO TRANSDEVELOPMENT GROUP DRAWING SK-5 DATED 1/29/2016 FOR FURTHER INFORMATION ON FOUNDATION DESIGN FOR 100' POLES. FOUNDATION DESIGN IS PRELIMINARY FOR REFERENCE ONLY. CONTRACTOR SHALL OBTAIN A WRITTEN VERIFICATION OF DESIGN OF FOUNDATION FROM A MARYLAND REGISTERED STRUCTURAL ENGINEER PRIOR TO INSTALLATION.

2. FOR CONDUIT RUNS EXCEEDING 200', GRC ELBOWS SHALL BE USED IN LIEU OF PVC.

3. CONDUITS SHALL BE INSTALLED PER ARTICLE 300, TABLE 300.5 MINIMUM COVER REQUIREMENTS.

4. FOUNDATION DESIGN IS PRELIMINARY FOR REFERENCE ONLY. CONTRACTOR SHALL OBTAIN A WRITTEN VERIFICATION OF DESIGN OF FOUNDATION FROM A MARYLAND REGISTERED STRUCTURAL ENGINEER PRIOR TO INSTALLATION.

5. REFER TO DRAWING E501 FOR SITE DETAILS

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SITE PLAN - ELECTRICAL

No.	DATE	REVISION	BY
1	07-06-2016	MOVED LIGHT POLES AS INDICATED	TLM
	10-05-2016	AS-BUILT	TLM

DRAWN BY	TLM
CHECKED BY	GAM
SCALE	AS NOTED
DATE	7/21/15
JOB NUMBER	163722-11
FILE	-

E011
SHEET NUMBER

TRUE SHEET SIZE 30"x42"

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E011F 1" = 100'

SITE PLAN - FOOT-CANDLE LEVELS

CALCULATION SUMMARY

AREA NAME	DIMENSIONS	SPACING TYPE	# PTS	AVG	MAX	MIN
PARKING	2241.00 X 888.00 FT	Mixed (EW) HH	3300	1.31	5.33	0.00

ARCO RORO (1000) LUMINAIRE SCHEDULE

TYP	SYMBOL	DESCRIPTION	LAMP	LUMENS	MOUNTING/BALLAST	LLF	QTY.
P1		Holophane GLT1E51E4D (1) 850W HMLD2 12.5X XX X F	(1) 12 LED	56000		1.00	2
P2		Holophane GLT1E51E4D (8) 740W HMLE2 12.5X XX X AW	(8) 12 LED	56028		1.00	8

AREA SUMMARY SCHEDULE

AREA NAME	QTY	DIMENSIONS	LUMS/<ASIS>	WATTS/SQ FT	QTY
PARKING	1	2241.00 X 888.00 FT	2		1

DRAWN BY	CHECKED BY
TLM	GAM
SCALE	
AS NOTED	
DATE	JOB NUMBER
7/21/10	163722-11
FILE	
-	

No.	DATE	REVISION	BY
	10-05-2016	AS-BUILT	TLM
1	07-06-2016	MOVED LIGHT POLES AS INDICATED	TLM

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SITE PLAN - FOOT-CANDLE LEVELS

E011F
SHEET NUMBER

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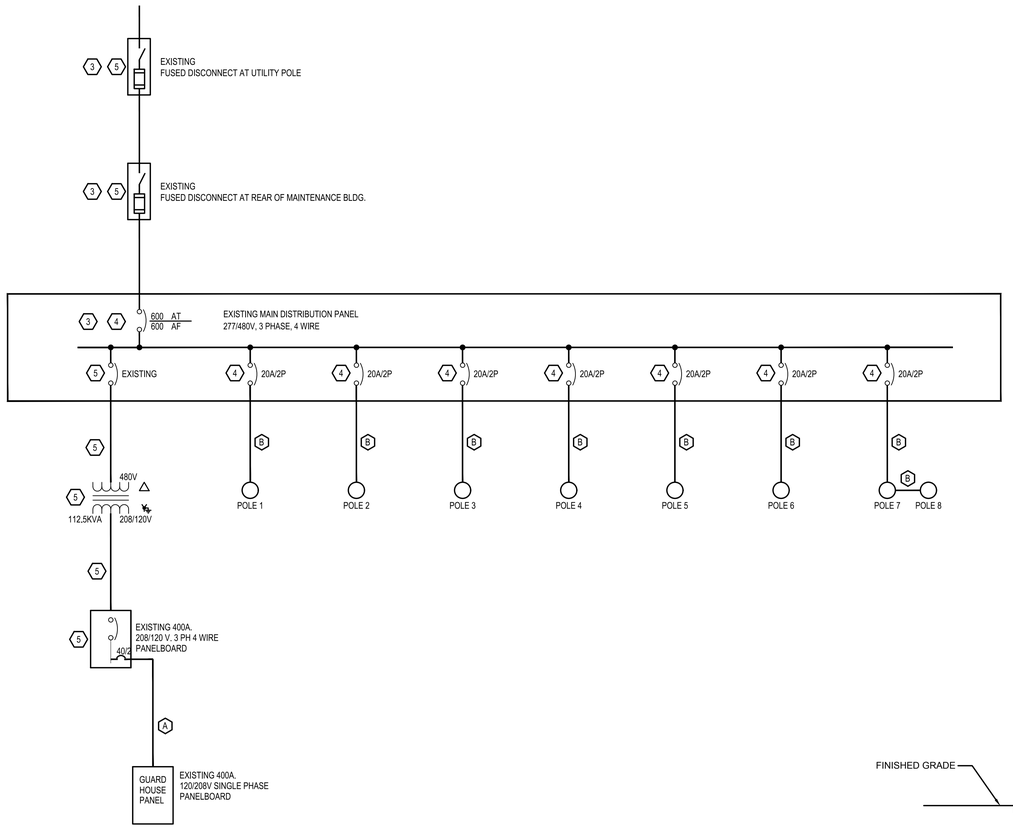
TRUE SHEET SIZE 30"x42"



ONE LINE DIAGRAM

LIGHTING FIXTURE SCHEDULE

SCHEDULE ABBREVIATIONS:
LAMP TYPES: CFL = COMPACT FLUORESCENT: FL = FLUORESCENT: HA = HALOGEN: HPS = HIGH PRESSURE SODIUM: IN = INCANDESCENT: LED = LIGHT EMITTING DIODE: MH = METAL HALIDE: MHPS = METAL HALIDE PULSE START: Q = QUARTZ:
BALLAST: DM = DIMMING: EL = ELECTRONIC: HPF = HIGH POWER FACTOR: IS-HBF =IS-HBF- INSTANT START HIGH BALLAST FACTOR ED-DRV = LED DRIVER: LOW = LOW TEMPERATURE DEGREE RATING AS INDICATED: MV = MULTIPLE VOLTAGE BALLAST; SD = 50% STEP-DIMMING; DM 10 = 0-10V LED DIMMING DRIVER
ENVIRONMENT: CR = CORROSIVE: DL = DAMP LOCATION: IN = INDOOR: HD = HOSE DOWN (HIGH PRESSURE): HZ = HAZARDOUS LOCATION: WL = WET LOCATION
MOUNTING: AHAP = AS HIGH AS POSSIBLE: CLG. HGT. = CEILING HEIGHT: IG = IN-GRADE: P = PENDANT: PL = POLE: R = RECESSED: SC = SURFACE CEILING: SW = SURFACE WALL: SR = SEMI-RECESSED: T = TRACK: UC = UNDER CABINET: UV = UNIVERSAL; W = WALL

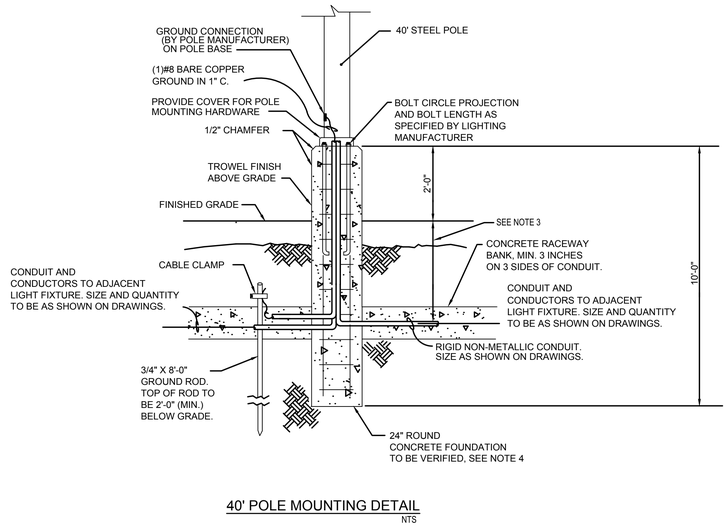
SYMBOL/ WATTS	FIXTURE COUNT	MANUFACTURER/CATALOG NUMBER	FIXTURE DESCRIPTION	LENS/ LOUVER	LAMPS				BALLAST		ENVIR.	MOUNTING		VOLTS	REMARKS
					NO.	WATTS	TYPE	MODEL NUMBER OR CONFIGURATION	NO.	TYPE		TYPE	HEIGHT AFF		
A4000	6	HOLOPHANE HMLED2 12 5K AH * AW PCL4 (8 HEADS ON 100' POLE W/ LOWERING DEVICE)	HIGH MAST LED, WIDE DISTRIBUTION, * COLOR, PHOTOCONTROL	-	-	500	LED	5000K	-	-	WT	PL	100	480	-
B500	2	HOLOPHANE HMLED2 12 5K AH * F PCL4 (1 HEADS ON 40' POLE)	HIGH MAST LED, FORWARD DISTRIBUTION, * COLOR, PHOTOCONTROL	-	-	500	LED	5000K	-	-	WT	PL	40	480	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

FEEDER SCHEDULE

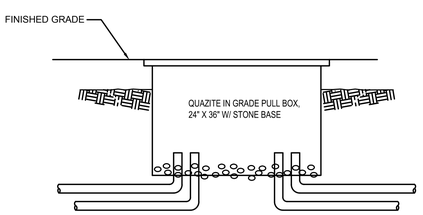
DES.	CONDUCTORS
A	3 - #4/0, #2/0 EGC,ALUMINUM TYPE XHHW-2 2-1/2"C.
B	REFER TO DRAWING E011 SITE PLAN FOR WIRE AND CONDUIT SIZES

NOTES:

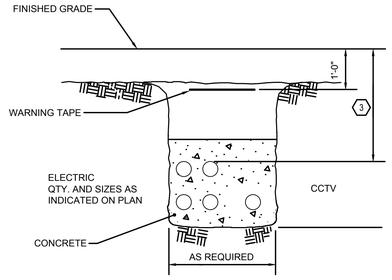
1. DISCONNECT SHALL BE LOCATED WITHIN SIGHT OF TRANSFORMER.
2. PROVIDE OUT DOOR ENCLOSURE.
3. VERIFY AND CORRECT AS REQUIRED THAT ALL NEC GROUNDING AND BONDING MEETS THE REQUIREMENT OF NEC 2014.
4. OBTAIN FAULT CURRENT AT EXISTING MDP FROM UTILITY TO DETERMINE REQUIRED AIC RATING OF NEW CIRCUIT BREAKERS THAT WILL BE ADDED TO FOR THE NEW LIGHT POLES AND NEW POWER FEED TO THE GUARD HOUSE. ADVISE OWNER IN WRITING WITH RECOMMENDATIONS SHOULD ANY EXISTING OVERCURRENT PROTECTION DEVICES WITHIN THE EXISTING MDP ARE INADEQUATELY RATED.
5. INSPECT EXISTING EQUIPMENT TO BE REUSED TO VERIFY COMPLIANCE WITH NEC 2014 EDITION. PROVIDE OWNER WRITTEN RECOMMENDATIONS TO CORRECT NEC VIOLATION ISSUES.



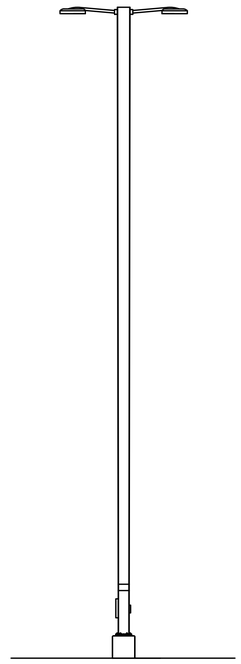
40' POLE MOUNTING DETAIL
NTS



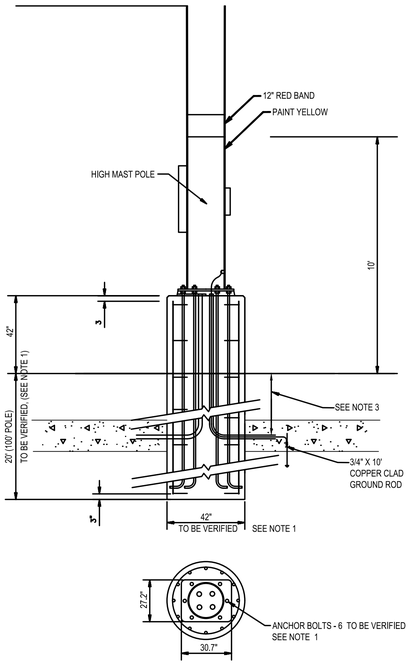
QUAZITE PULL BOX
NTS



TYPICAL CONDUIT BANK
NTS



HIGH MAST LIGHT POLE ELEVATION
NTS



HIGH MAST LIGHT POLE BASE
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BALTIMORE, MARYLAND
ONE LINE DIAGRAM AND SCHEDULES - ELECTRICAL

No.	DATE	REVISION	BY
	10-05-2016	AS-BUILT	TLM

DRAWN BY: TLM
CHECKED BY: GAM
SCALE: AS NOTED
DATE: 7/23/19
JOB NUMBER: 163722-11
FILE: -

E501
SHEET NUMBER

TRUE SHEET SIZE 30"x42"

10/5/2016 11:55 AM TIMUNDIS
J:\2016 Jobs and Bids – Electrical\163722-11 RJD\ARCO\tradepoint\RORO area lighting\03-10-16\Drawings\E501 ONE LINE DIAGRAM AND SCHEDULES – ELECTRICAL.dwg

APPENDIX C

CONTAINMENT REMEDY OPERATIONS AND MAINTENANCE PLAN
SUB-PARCEL B4-1 FORMER SPARROWS POINT STEEL MILL

Containment Remedy Operations and Maintenance Overview

In accordance with the Sub-Parcel B4-1 Development Completion Report for development on a designated portion of the Sparrows Point Peninsula in Sparrows Point, MD (the Site), post remediation care requirements include compliance with the conditions placed on the No Further Action Letter, Certificate of Completion, and deed restrictions recorded for the Site. In addition, maintenance will be performed on the capped areas to control degradation and exposure to the underlying soil. Inspections of the capped areas will be conducted annually. The responsible party will perform cap inspections, maintenance of the cap, and retain cap inspection records. Maintenance records will include the date of the inspection, name of the inspector, any noted issues, and subsequent resolution of the issues. Maintenance records will be maintained in a designated area at the Site for Maryland Department of the Environment (MDE) inspection and review, if requested.

The containment remedy (cap) has been constructed as described in the Parcel B4-1 Development Completion Report. The following sections provide details of the Operations and Maintenance Plan (O&M Plan) procedures to be followed at the Site to assess when maintenance of the capped areas is necessary.

Designated Pavement Area Inspections

The designated paved areas, as identified in the Development Completion Report, will be maintained to ensure integrity of the cap. Paved areas subject to this O&M Plan include both exterior pavements (parking lots and roads) and interior pavements (building slabs).

Pavement area inspections will be conducted on an annual basis to ensure that the capped areas are maintained as needed. During the inspection, the capped surfaces will be inspected to check for the following potential conditions:

- Differential settlement and significant surface-water ponding;
- Erosion or cracking of the cap materials; and
- Obstruction or blocking of drainage facilities.

When inspections indicate that cap repair is necessary, repairs will be completed as soon as practically possible in compliance with any recorded deed restrictions. The work will be documented on a form similar to the attached example Pavement Inspection Form. The inspection documentation will include the results of each inspection, recommended maintenance actions, and the actual maintenance/repair implemented. The responsible party will maintain inspection forms and any resulting repair records.

Pavement Inspection Protocol

A pavement management system (pavement condition index) will be implemented in the designated areas of the Site. The purpose of this system is to plan and prioritize future pavement maintenance needs. The system is based on a numerical rating of pavement distresses as published by the United States Army Corps of Engineers. The following chart will be used to provide an index of the pavement condition.

PAVEMENT CONDITION INDEX (PCI)		
PCI	**Characterization**	**Description**
1	New crack-free surface	Black in color, smooth texture
2	Oxidation has started	Short hairline cracks start to develop; dark gray color.
3	Oxidation in advanced state	Hairline cracks are longer and wider; gray in color
4	Oxidation complete	Cracked area 0.25 inch wide and crack lines have found base faults
5	Moisture penetrating through 0.25 inch cracks; loose material, stone and sand, evident	Texture of surface becoming rough; Preventative maintenance
6	Cracks widen and join	Cracks and shrinkage evident at curb and gutter lines
7	Potholes develop in low spots	Gatoring areas begin to break up; overall texture very rough.
8	Potholes developing	Pavement breaking up
9	Heaving due to excessive moisture in base	Distorts entire surface

PAVEMENT CONDITION INDEX (PCI)		
PCI	**Characterization**	**Description**
10	General breakup of surface	General breakup of surface

An inspection indicating a PCI of 4 or greater for designated areas of the Site will require maintenance. The intent is that repairs should be completed before the pavement degrades beyond a PCI of 4. MDE will be notified in a timely manner of any repairs that are the result of a PCI of 4 or greater. The notification will include documentation of the conditions being repaired and the location of the repair.

PAVEMENT INSPECTION FORM	Sub-Parcel B4-1 Development Fmr. Sparrows Point Steel Mill
Date:	Time:
Weather Conditions:	
General Pavement Conditions:	

PCI		Characterization	Description
1		New crack-free surface	Black in color, smooth texture
2		Oxidation has started	Short hairline cracks start to develop; dark gray color
3		Oxidation in advanced state	Hairline cracks are longer and wider; gray in color
RESPONSE REQUIRED	4	Oxidation complete	Crack area 0.25 inch wide and crack lines have found base faults
	5	Moisture penetrating through 0.25-inch cracks; loose material, stone and sand, evident	Texture of surface becoming rough; preventative maintenance
	6	Cracks widen and join	Cracks and shrinkage evident at curb and gutter lines
	7	Potholes develop in low spots	Gatoring areas begin to break up; overall texture very rough
	8	Potholes developing	Pavement breaking up
	9	Heaving due to excessive moisture in base	Distorts entire surface
	10	General breakup of surface	General breakup of surface

PAVEMENT INSPECTION FORM	Sub-Parcel B4-1 Development Fmr. Sparrows Point Steel Mill
CURB CONDITION	☐ Exists ☐ Sound ☐ Cracked ☐ Root Intrusion ☐ Deteriorated Comments:_____
SIDEWALK CONDITION	Comments:_____
RESPONSE REQUIRED	
WORK COMPLETED	
PHOTOGRAPHS / FIGURES ATTACHED	_____
RESPONSE CONTRACTOR	Work Completed By: _____Date: Signature: