



EST. 1871

# CITY OF NEW BRITAIN

DEPARTMENT OF PUBLIC WORKS

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## **Preliminary Design Report Stanley Loop Trail – Phase II New Britain, Connecticut**

**State Project No. 88-195  
Federal Aid Project No. PEDS 15  
February 22, 2019**

### **Project Description**

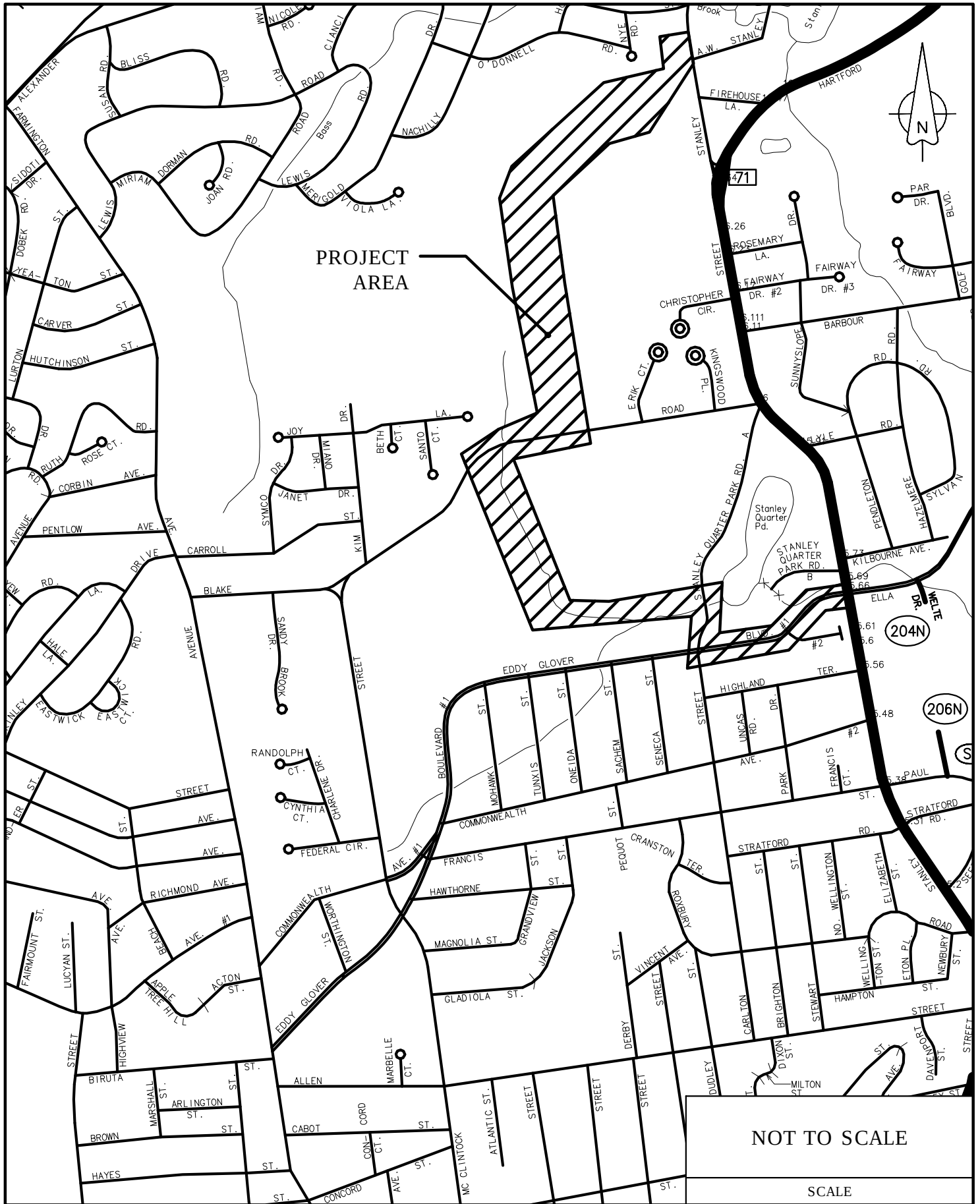
The Stanley Loop Trail was first identified in New Britain's City-wide Traffic Calming and Bicycle Connectivity Plan which was completed in 2013, and is one of the few remaining components of this plan that has not been completed.

The project involves the second phase of the Stanley Loop Trail, to be constructed in sections of Stanley Quarter and AW Stanley Parks. Both parks are located in the northeastern portion of the city, in close proximity to Central Connecticut State University (CCSU), the West Farms Mall employment center & retail corridor, and CTfastrak.

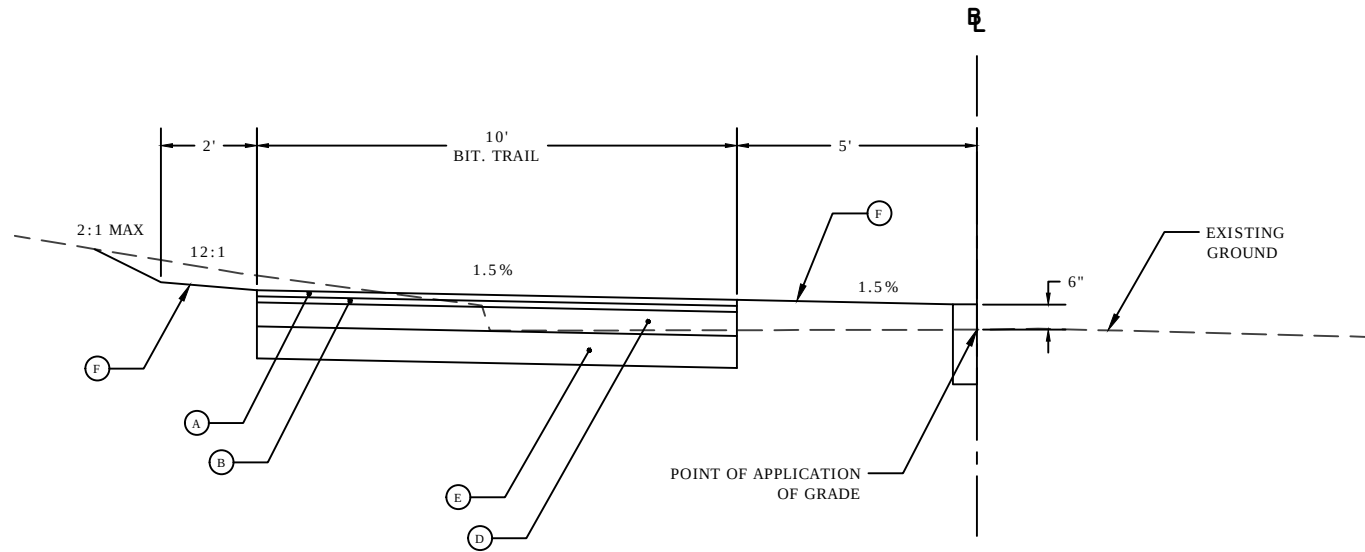
The project involves the design and construction of the remaining sections of the Stanley Loop Trail. This second phase of the Stanley Loop Trail involves approximately 1.6 miles of paved multi-use trail that will begin in Stanley Quarter Park near an existing paved trail and skate park. The trail has a northern limit adjacent to the Holmes Elementary School across the street from the first phase of the Stanley Loop Trail which is currently in construction.

The paved trail will be an ADA accessible 14' wide with 10' paved and two 2' shoulders one of which would be a 2' stone dust surface and the other a 2' grass surface. The trail will primarily follow an alignment along existing dirt paths and will be approximately 1.6 miles in length. Its construction will involve minor grading, tree clearing, and the construction of the trail. The typical cross section used for the multi-use trail will consist of three inches of bituminous pavement installed over 6-inches of base material. Root barriers will also be added where needed to protect the pavement cross section from tree root damage.

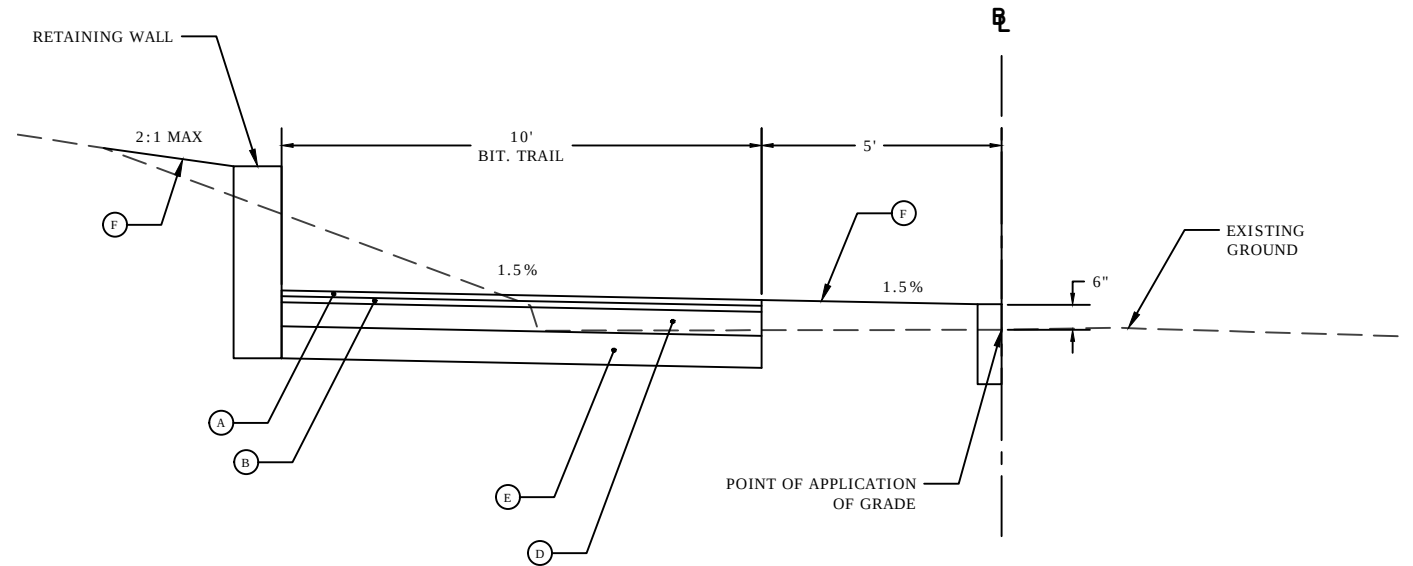
Some functional and aesthetic amenities such as benches, bike racks, fencing, and wayfinding and informational signage will be involved as part of the project. Grades in the project area are favorable for the construction of a multi-use trail.



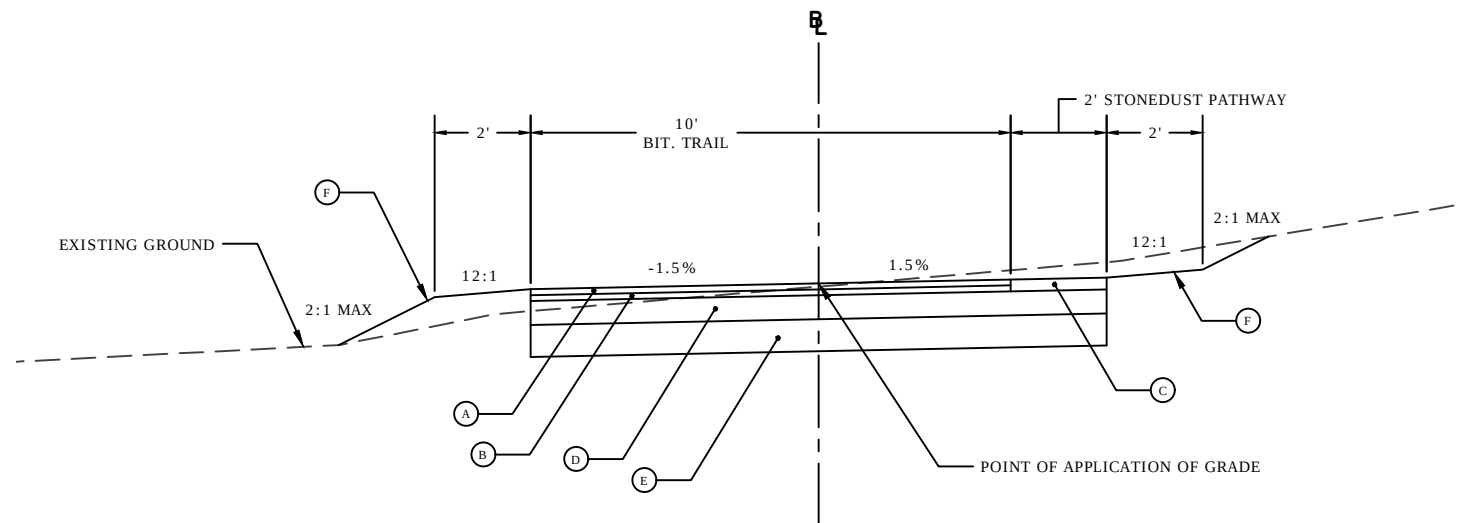
|                           |                                                                                         |                                                                                     |                                                                                                                              |
|---------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| DRAWN BY<br>J.OUTLAW      | PROJECT TITLE<br><br>STANLEY LOOP TRIAL - PHASE II<br>STANLEY AW & STANLEY QUARTER PARK |  | CITY OF NEW BRITAIN<br>27 WEST MAIN STREET<br>NEW BRITAIN, CT 06051<br>DEPARTMENT OF PUBLIC WORKS<br>DIVISION OF ENGINEERING |
| DATE<br>2/22/2019         |                                                                                         |                                                                                     |                                                                                                                              |
| APPROVED BY<br>R.TROTTIER |                                                                                         |                                                                                     |                                                                                                                              |
| DATE<br>2/22/2019         |                                                                                         |                                                                                     |                                                                                                                              |
|                           | DRAWING TITLE<br><br>LOCATION MAP                                                       |                                                                                     |                                                                                                                              |



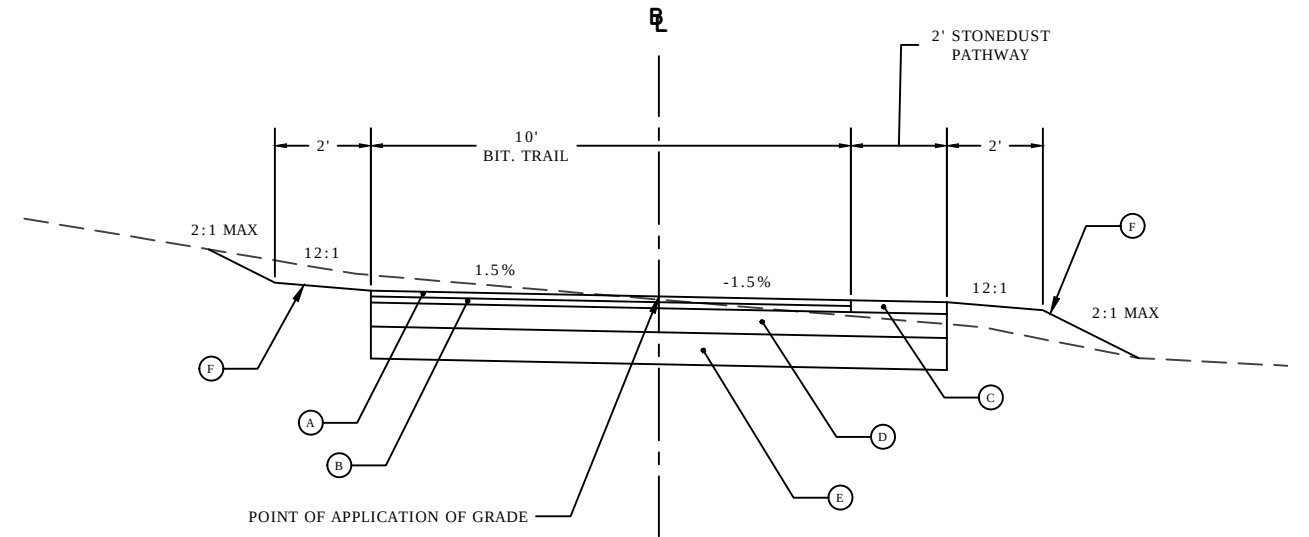
EDDY GLOVER BOULEVARD TRAIL  
STA. 100+00 TO 105+75  
STA. 106+25 TO 111+84



EDDY GLOVER BOULEVARD TRAIL  
STA. 105+75 TO 106+25



STANLEY QUARTER PARK TRAIL  
STA. 200+00 TO 203+00  
STA. 203+50 TO 214+59  
A.W. STANLEY PARK TRAIL  
STA. 300+73 TO 302+62  
STA. 324+15 TO 330+81



STANLEY QUARTER PARK TRAIL  
STA. 214+59 TO 219+95  
STA. 228+40 TO 228+75  
A.W. STANLEY PARK TRAIL  
STA. 332+85 TO 334+32  
STA. 335+24 TO 335+31

LEGEND:

- A. 1.25" HMA S0.25 (TRAFFIC LEVEL 1)
- B. 2" HMA S0.5 (TRAFFIC LEVEL 1)
- C. 3" STONEDUST SHOULDER
- D. 6" PROCESSED AGGREGATE BASE
- E. 8" SUBBASE
- F. TOPSOIL AND TURF ESTABLISHMENT

NOTES:

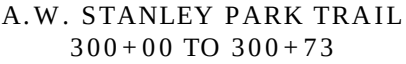
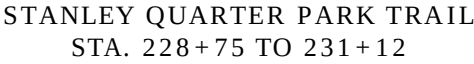
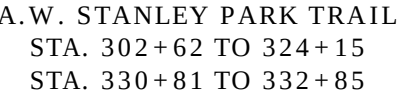
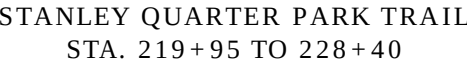
- 1) TYPICAL SECTIONS STATION RANGES TO BE DETERMINED UPON COMPLETION OF FIELD SURVEY
- 2) DAYLIGHT SLOPES FOR CUT AND FILL CONDITIONS TO VARY BASE UPON DEPTH. 6:1 FOR 0-1 FEET, 4:1 FOR 1-2 FEET, AND 2:1 FOR GREATER THEN 2 FEET



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27 WEST MAIN STREET  
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DIVISION OF ENGINEERING

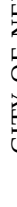
STANLEY LOOP TRAIL - PHASE II  
A.W. STANLEY & STANLEY QUARTER PARK  
TYPICAL CROSS SECTIONS

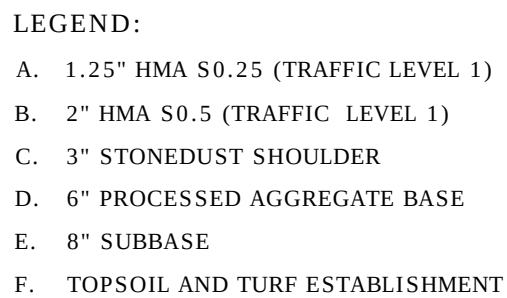
| REFERENCES     |           | PROJECT TITLE        |            | SCALE        |  |
|----------------|-----------|----------------------|------------|--------------|--|
| DRAWN BY       | J. OUTLAW | CHECKED BY           | R. TROTTER | NOT TO SCALE |  |
| PROJECT NUMBER | 88-195    | REVISION DESCRIPTION | REV.       | DATE         |  |
| DRAWING NUMBER | TYP-01    |                      |            |              |  |



1) TYPICAL SECTIONS STATION RANGES TO BE DETERMINED  
UPON COMPLETION OF FIELD SURVEY

2) DAYLIGHT SLOPES FOR CUT AND FILL CONDITIONS TO VARY  
BASE UPON DEPTH. 6:1 FOR 0-1 FEET, 4:1 FOR 1-2 FEET, AND  
2:1 FOR GREATER THEN 2 FEET

|                                                                                     |            |                                                                                                                                                                                     |       |
|-------------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|  |            | <p><b>CITY OF NEW BRITAIN</b><br/>         27 WEST MAIN STREET<br/>         NEW BRITAIN, CT 06051</p> <p><b>DEPARTMENT OF PUBLIC WORKS</b><br/>         DIVISION OF ENGINEERING</p> |       |
| <p>PROJECT TITLE</p>                                                                |            | <p><b>STANLEY LOOP TRAIL - PHASE II</b><br/> <b>A.W. STANLEY &amp; STANLEY QUARTER PARK</b></p>                                                                                     |       |
| <p>DRAWING TITLE</p>                                                                |            | <p><b>TYPICAL CROSS SECTIONS</b></p>                                                                                                                                                |       |
| DRAWN BY                                                                            | J. OUTLAW  | NOT TO SCALE                                                                                                                                                                        | SCALE |
| CHECKED BY                                                                          | R. TROTTER |                                                                                                                                                                                     |       |
| PROJECT NUMBER                                                                      | 88-195     | REV.                                                                                                                                                                                | DATE  |
| DRAWING NUMBER                                                                      | Typ-02     | REVISION DESCRIPTION                                                                                                                                                                |       |



NOTES:

1) TYPICAL SECTIONS STATION RANGES TO BE DETERMINED UPON COMPLETION OF FIELD SURVEY

2) DAYLIGHT SLOPES FOR CUT AND FILL CONDITIONS TO VARY BASE UPON DEPTH. 6:1 FOR 0-1 FEET, 4:1 FOR 1-2 FEET, AND 2:1 FOR GREATER THEN 2 FEET

## 1. Existing Conditions Survey

The preliminary design plans have been designed based on Class A2/T2 field survey including wetlands flagging and seasonal. Field survey elevations are based on NAVD 88 and the north arrow and bearings are based on the Connecticut state plane coordinate system (NAD 1983).

## 2. Geometric Detail

Daylight slopes for cut and fill conditions to vary based on cut and fills depths. 6:1 allowable for 0-1 feet, 4:1 allowable for 1-2 feet, and 2:1 is the maximum allowable slope and used when cut and fill depths are greater than 2'.

| Attribute                                      | Requirements          | Design                                                                                        |
|------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------|
| Minimum Radius                                 | 74'                   | 80'                                                                                           |
| Minimum Stopping Sight Distance (Ascend) at 7% | See Figure 5-6 in (1) | Requires verification for individual curves based on Grade                                    |
| Minimum Stopping Sight Distance (Decend) at 7% | See Figure 5-7 in (1) | Requires verification for individual curves based on Grade                                    |
| Min Length of Crest Vertical Curve             | See Figure 5-8 in (1) | Requires verification for individual curves based on Stopping Sight Distance and Grade Change |
| Cross Slope                                    | 2% Max                | 1.5%                                                                                          |
| Path Width                                     | 10' Min               | 10'                                                                                           |
| Shoulder Width                                 | N/A                   | 2'                                                                                            |
| Lane Material                                  | N/A                   | 3" S 0.5                                                                                      |
| Shoulder Material                              | N/A                   | 3" Stone Dust                                                                                 |
| Maximum Grade                                  | 5%                    | 5%                                                                                            |
| Minimum Grade                                  | 0.5%                  | 0.51%                                                                                         |

(1) ASSTO "Guide for the Development of Bicycle Facilities", Fourth Edition, 2012

## 3. Right of Way

There is no right-of-way involvement anticipated for this project.

## **4. Existing Drainage**

Multiple seasonal runoff locations have been identified while conducting the field survey.

There is one existing major culvert crossing, a 48 inch culvert crossing the trail in Stanley Quarter Park at Station 215+42. The culvert has drainage area of approximately 131.0 acres and was recently replaced with a 48 inch HDPE pipe through the city's maintenance department.

## **5. Proposed Drainage**

Multiple seasonal runoff locations have been identified while conducting the field survey. Areas where seasonal runoff is a concern are being mitigated with the construction of a swale parallel to the trail which flows to an inlet at the low points in the trail which are then piped across the trail toward the wetlands.

In the area of station 331+00 to 335+35, there is significant runoff cause erosion near the trail and along an abutting property causing debris to accumulate in the Stanley Street gutter line. In order to mitigate this issue a swale will be installed flowing from the existing natural swale to a Type 'L' Endwall inlet. The inlet will connect to the drainage system in the Holmes Elementary School parking lot which in turn connects to the Stanley Street Drainage system. In addition, the pipe connecting the end wall to the parking lot system will also capture water from the side lot, which is to be regraded and have Type 'C' Catch Basin Installed in the North East Corner.

## **6. Proposed Pedestrian Bridge**

A pedestrian bridge has been proposed parallel to an existing stone bridge in Stanley Quarter Park. The bridge is to be approximately 50 feet long and 10 feet wide.

## **7. Utilities**

There are no major utility impacts anticipated for this project. The only utility work anticipated is running a new service line at Blake Road to supply electricity to the proposed pedestrian activated rectangular rapid flashing beacons.

## **8. At-Grade Pedestrian Crossing**

The pedestrian crossing is a curve located at the base of a steep decline in both directions of travel giving limited sight distance. Pedestrian activated Rectangular Rapid Flashing Beacons (RRFBs) are proposed across the crosswalk to enhance visibility of the pedestrians. Due to the limited sight distances when approaching the crosswalk additional RRFB's are proposed approximately 300 to 400 feet ahead of the crosswalk for advanced warning which is in compliance with the MUTCD's conditions of interim approval for the use of RRFB as a pedestrian-activated conspicuity enhancement to supplement standard pedestrian crossing signs at uncontrolled marked crosswalks.

In addition, the southern curb line of Blake Road will be shifted to the north approximately 8 feet. This will serve as a traffic calming measure as well as reduce the crossing distance.

## **9. Maintenance and Protection of Traffic**

The majority of the project construction will take place outside of traveled roadways. Work with in traveled roadway will be controlled using CTDOT standard maintenance and protection of traffic plates.

## **10. Sedimentation and Erosion Control**

Silt fence shall be place down slope of all construction areas, catch basins with in the project limits shall have sedimentation controls systems installed and all leak offs on the roadway shall be protected with hay bales.

## **11. Construction Cost Estimate**

The preliminary design construction estimate for this project is \$2,150,000.00.

## **12. Historic Impacts**

The project is currently under review by the OEP cultural resource staff.

## **13. Water Resource Impacts**

All wetlands have been flagged within 50' of the proposed trail. At this time the anticipated impact to wetlands are minor (approximately 2500SF).

## **14. Crash Experience**

10 crashes have occurred within an eighth mile of the trail crossing on Blake Road in the 2015 to 2018 time frame. The sharp turn at the bottom of a steep grade is a major contributing factor in these accidents.

## **15. Permit Involvement**

There are three (3) permits anticipated for this project.

- Local Inland Wetlands
- Local 8-24 Approval
- 4(f) – Parklands & Wildlife Refuge



|                              |                    |
|------------------------------|--------------------|
| <b>Project No.</b>           | 88-195             |
| <b>Roadway</b>               | Stanley Loop Trail |
| <b>Town</b>                  | New Britain        |
| <b>Date</b>                  | 02/22/2019         |
| <b>Designed By</b>           | J.Outlaw           |
| <b>Signature of Engineer</b> |                    |

### Preliminary Design Checklist (Plans 35% Complete)

*Allow a 3-4 week review time.*

The Preliminary Design Submission should include the following:

#### a. Preliminary Design Statement

The design statement should contain a narrative for the following:

1. Description of hydraulics and drainage involvement.  
☒ Included      ☐ Not Included      ☐ Not Applicable
2. A list of existing culvert or bridge crossings for tributary areas:  
 a.) > 81 ha (200 Acres) and < 2.59 km<sup>2</sup> (1 mi<sup>2</sup>)  
 b.) > 2.59 km<sup>2</sup> (1 mi<sup>2</sup>)  
☒ Included      ☐ Not Included      ☐ Not Applicable
3. Available fish passage information from the ConnDEP Fisheries Division.  
☐ Included      ☐ Not Included      ☒ Not Applicable
4. Water diversions.  
☐ Included      ☐ Not Included      ☒ Not Applicable
5. Justification for drainage design not consistent with the Drainage Manual criteria.  
☐ Included      ☐ Not Included      ☒ Not Applicable
6. List of permit requirements (ie: FPM, SCEL, DAM, CAM, etc...)  
☐ Included      ☐ Not Included      ☒ Not Applicable
7. Required detention designs.  
☐ Included      ☐ Not Included      ☒ Not Applicable
8. Any unusual designs such as pumping stations.  
☐ Included      ☐ Not Included      ☒ Not Applicable
9. Tidal Involvement.  
☐ Included      ☐ Not Included      ☒ Not Applicable
10. Investigation of existing drainage concerns and/or problems. Contact Town/City maintenance departments for local road projects or ConnDOT Maintenance departments and district drainage engineer for State highway projects.  
☒ Included      ☐ Not Included      ☐ Not Applicable

**b. Plans, Profiles and available Cross Sections**

1. Watercourses, perennial and intermittent should be shown and labeled.  
☒ Included                      ☐ Not Included                      ☐ Not Applicable
2. Special drainage provisions such as sedimentation basins and/or non standard drainage structures.  
☐ Included                      ☐ Not Included                      ☒ Not Applicable
3. Approximate slope limits.  
☒ Included                      ☐ Not Included                      ☐ Not Applicable
4. Taking lines and property lines.  
☐ Included                      ☐ Not Included                      ☒ Not Applicable
5. Existing ground line and existing structures.  
☐ Included                      ☐ Not Included                      ☒ Not Applicable
6. Existing drainage rights from survey information.  
☐ Included                      ☐ Not Included                      ☒ Not Applicable
7. Preliminary conceptual layout of proposed drainage system including channels, ditches and swales.  
☒ Included                      ☐ Not Included                      ☐ Not Applicable
8. FEMA 100 year floodplain and/or SCEL shown and labeled.  
☐ Included                      ☐ Not Included                      ☒ Not Applicable

**c. Watershed Area Map**

1. An overview contour map (100 or 200 scale contour map or USGS 2000 scale topographic map) for the project showing watershed areas for all cross culverts.  
☒ Included                      ☐ Not Included                      ☐ Not Applicable

**d. Structures with drainage areas > 2.59 km<sup>2</sup> (1 mi<sup>2</sup>)**

1. Hydrology computations determining the drainage area and design discharge.  
☐ Included                      ☐ Not Included                      ☒ Not Applicable
2. Preliminary hydraulic and scour computations for the structure type study alternatives (the above hydrology computations must be approved prior to the start of the preliminary hydraulic computations).  
☐ Included                      ☐ Not Included                      ☒ Not Applicable

Provide justification for items **Not Included**. Justification should correspond to letter and number (e.g.: **a.1., b.1., c.1.**, etc...).

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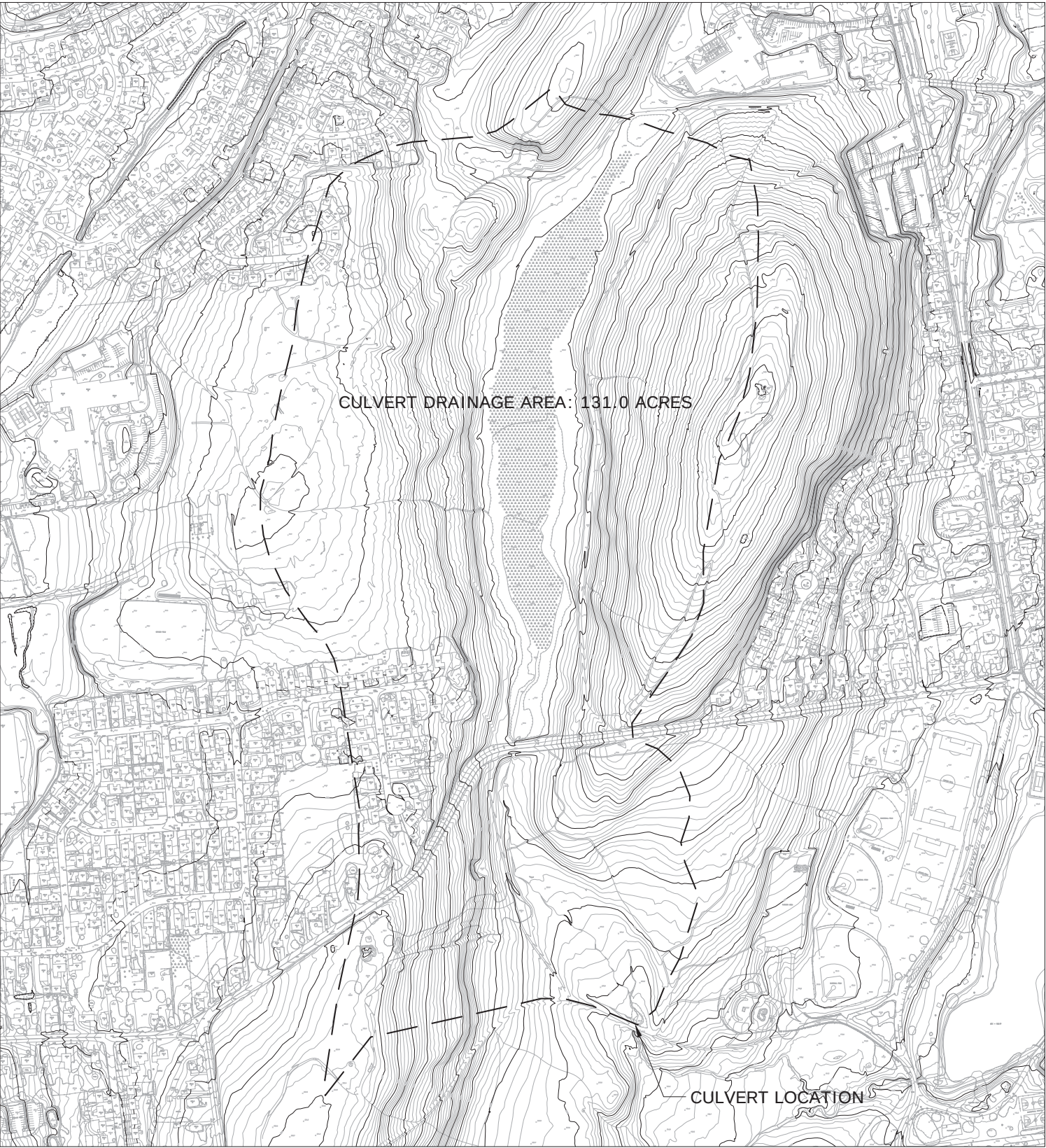
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| FILE NAME | PROJECT NUMBER |                      | PROJECT TITLE                     |                         | CITY OF NEW BRITAIN<br>27 WEST MAIN STREET<br>NEW BRITAIN, CT 06051<br>DEPARTMENT OF PUBLIC WORKS<br>DIVISION OF ENGINEERING |                                             |                        |
|           | 88-195         |                      | STANLEY LOOP TRAIL - PHASE II     |                         |                                                                                                                              | SEAL OF THE CITY OF NEW BRITAIN, CT<br>1871 |                        |
|           | DRAWING NUMBER |                      | STANLEY AW & STANLEY QUARTER PARK |                         |                                                                                                                              |                                             |                        |
|           | DAE-01         |                      | DRAINAGE AREA MAP - EXISTING      |                         |                                                                                                                              |                                             |                        |
| REV. DATE |                | REVISION DESCRIPTION |                                   | DRAWN BY<br>J OUTLAW    | SCALE                                                                                                                        |                                             | 1" = 250'<br>0 250 500 |
|           |                |                      |                                   | CHECKED BY<br>R TROTTER |                                                                                                                              |                                             |                        |
|           |                |                      |                                   |                         |                                                                                                                              |                                             |                        |
|           |                |                      |                                   |                         |                                                                                                                              |                                             |                        |