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WMSC Commissioner Brief: W-0187 – Serious Injury – Cheverly Station – June 3, 2022

Prepared for Washington Metrorail Safety Commission meeting on November 15, 2022

Safety event summary:

At approximately 11:23 p.m., a Construction Foreman contractor at Cheverly Station fell from the Cheverly Station platform onto track 2, breaking their leg. This serious injury occurred during a months-long shutdown of this portion of the Orange Line for platform, structure, and other repairs. This shutdown area was part of an Authorized Construction Site, under the control of a Metrorail contractor.

The contractor was standing on an unsecured piece of granite edge when it shifted underneath them, causing them to lose their balance and fall to the roadway. Their leg was pinned by a falling piece of granite. Metrorail had not ensured that safety barriers were installed to protect against such a fall and there was nothing else indicating the hazard of the unsecured granite platform edge. There was no Closed-circuit Television (CCTV) footage captured of the event because cameras were powered down during construction activities.

Because this area was part of a long-term shutdown, Metrorail expects its contractors to communicate any need for emergency response within the site directly to jurisdictional 911 call centers. The onsite WMATA Construction Inspector is required to make internal notifications to the Metro Transit Police Department (MTPD) and the Department of Safety (SAFE). The Construction Inspector is only required to notify the Rail Operations Control Center (ROCC) if an emergency reaches a specified level, including any events that result in severe injury.

At approximately 11:49 p.m., the Construction Inspector notified the ROCC and advised that Prince George's County Fire/EMS Department (PGFD) personnel were on the scene. A ROCC Rail Traffic Controller notified the ROCC Assistant Operations Manager. At 11:54 p.m., an additional call was made by the Roadway Working In Charge to the ROCC to inform the Rail Traffic Controller of the safety event. An MTPD Officer arrived on the scene at approximately 11:55 p.m. and at approximately 12:02 a.m. reported that fire department personnel had removed the contractor from the track bed and transported them to a hospital. At approximately 12:07 a.m. another report of the incident came into the ROCC, this time from the Construction Manager to the Mission Assurance Coordinator (MAC).

A stop work order was issued following the event.

WMATA did not report the safety event to the WMSC within 2 hours of its occurrence as required. Metrorail notified the WMSC of this event at 7:59 a.m. the following day, nearly nine hours after the event.

Probable Cause:

The probable cause of this event was Metrorail's inadequate oversight of its contractors. Specifically, this includes in this case Metrorail not ensuring effective mitigation of known risks identified in the Job Hazard Analysis, leading to work being conducted without the necessary fall protection and warning indications to effectively reduce the risk of serious injury.

Corrective Actions:

Safety barriers and rope were installed along the full length of the platform where granite edge pieces were being removed at three stations that were undergoing platform rehabilitation.

A safety standdown was held by the contractor that included a review of the event and provided instruction to personnel to remain behind the barrier at all times.

Metrorail will implement a more comprehensive OSC/JHA for hazard documentation and avoidance and update process to ensure SAFE and Office of Capital Program Delivery (CAPD) perform timely audits of contractor safety plans.

WMATA will implement more robust guidelines for future projects requiring edge or ledge work based on lessons learned.

WMATA provided training for MAC Operators in reference to reporting incidents to the WMSC.

WMSC staff observations:

Three calls in total from the scene of the event to the ROCC to report the injury demonstrate a lack of communication and failure to adhere with procedures as outlined in Temporary Order NO. T-22-17; ACS Limits for D Line Shutdown. Still, this is better than no calls being made. In addition, review of Temporary Order NO. T-22-17; ACS Limits for D Line Shutdown only requires onsite WMATA personnel to notify the ROCC during a level 3 emergency. WMATA should ensure future orders include adequate and specific notification processes to the ROCC, such as by the WMATA Construction Inspector, for each level of criticality for situational awareness and to ensure a smooth transition in the event the level rises during the event requiring ROCC involvement.

Washington Metropolitan Area Transit Authority
Department of Safety (SAFE)
Office of Safety Investigations

FINAL REPORT OF INVESTIGATION A&I E22340

Date of Event:	06/03/2022
Type of Event:	Serious Injury
Incident Time:	23:23 hours
Location:	Cheverly Station, Track 2
Time and how received by SAFE:	23:53 hours – ROCC
WMSC Notification Time:	13:45 hours on 06-04-2022
Responding Safety Officers:	WMATA: SAFE/OSO Construction WMSC: N/A Other: N/A
Rail Vehicle:	N/A
Injuries:	Dislocated Right Ankle with Four Fractures
Damage:	N/A
Emergency Responders:	Prince George's County Medical, Metro Transit Police Department (MTPD)
SMS I/A Incident Number:	20220620#101089

Cheverly Station – Serious Injury
06/03/2022
Table of Contents

Abbreviations and Acronyms

ACC	Atlantic Concrete Cutting
ACS	Authorized Construction Site
ARS	Audio Recording System
AOM	Assistant Operations Manager
CAPD	Office of Capital Program Delivery
CCTV	Closed-Circuit Television
JHA	Job Hazard Analysis
MSRPH	Metrorail Safety Rules and Procedures Handbook
NOAA	National Oceanic and Atmospheric Administration
OEP	Office of Emergency Preparedness
OSC	Operations Start Card
OSO	Office of Safety Oversight
ROCC	Rail Operations Control Center
RTRA	Office of Rail Transportation
SAFE	Department of Safety and Environmental Management
SMS	Safety Measurement System
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Executive Summary

On Friday, June 3, 2022, at approximately 23:23 hours, a Construction Foreman with AceCo Demolition was seriously injured within the platform limits of Cheverly Station, Track 2. At the time of the event, the station was closed to customers and part of an Authorized Construction Site (ACS).

A call was placed to the Rail Operations Control Center (ROCC) at approximately 23:49 hours by the Construction Inspector, reporting that a contractor Foreman sustained a fractured leg from falling into the track bed at approximately 23:30 hours. At approximately 23:50 hours, a call was placed by the Rail Traffic Controller (RTC) of the Rail Operations Control Center (ROCC) informing the Assistant Operations Manager (AOM) of the event.

At approximately 23:56 hours, an MTPD officer arrived on scene to assist. At approximately 00:02 hours of June 4, 2022, MTPD advised that Prince George's County Medical Unit retrieved the injured Foreman from the track bed and transported him to the Medstar Trauma Center for further assessment.

The Construction Manager stated that the Foreman lost their footing and fell from atop a piece of granite being removed from the platform, and then landed in the track bed. The Construction Manager advised the granite then slipped away from the platform, landing on the track bed, pinning the Foreman's leg underneath it. The Construction Manager advised the Foreman was removed from the scene by ambulance.

Witnesses to the event reported that the Foreman was standing on a cut piece of granite edge that was not secured in place, when the piece shifted under their feet. The Foreman landed on the track bed and his leg was pinned by the falling concrete. The incident report indicated that the granite edge hazard was discussed at the pre-job safety briefing, however no barricades were installed around the granite edge.

After the event, a stop work order was issued. WMATA and the contractor worked to identify additional mitigations, which included installation of a red rope and safety barriers along the entire length of the platform where the granite edge pieces were in various states of being cut for removal. This was conducted at the three stations where the platform rehabilitation was taking place. In addition, the contractor held a safety standdown with all personnel that reviewed the event and instructed all personnel to remain on the platform side of the barriers at all times.

The incident was not reported to the Washington Metrorail Safety Commission (WMSC) inside of two hours as required by policy.

The probable cause of this event were inadequate safeguards related to the granite edge. While the pre-shift briefing included verbal instruction to not stand on the granite edge, there were no visual indicators or barriers to prevent unintentional actions.

Incident Site

Cheverly Station, Track 2

Field Sketch/Schematics

Figure 1: Approximate location of the fall notated by red star, on Track 2, from Platform 2, Cheverly Station
**Not to scale, oriented North*

Purpose and Scope

The purpose of this accident investigation and candid self-evaluation is to collect and analyze available facts, determine the probable cause(s) of the incident, identify contributing factors, and make recommendations to prevent a recurrence.

Investigative Methods

The investigative methodologies included the following:

- Physical Site Assessment

- Formal Interviews – SAFE interviewed two individuals as part of this investigation. The interview included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). SAFE interviewed the following individuals:
    - Injured Party (Foreman)
    - Contractor (Witness)

- Informal Interviews – Collected through conversations with, and written statements provided by individuals during the investigation to provide background and supporting information:
    - Engineer (Kim Engineering) – statement
    - Laborer Foreman (AceCo Demolition) – statement
    - Contractor Witness (AceCo Demolition) – statement
    - Construction Safety Manager (OSO) – conversation
    - Construction Manager (CAPD) – conversation
    - Construction Inspector (CAPD) – statement
    - Project Manager (Atlantic Concrete Cutting) – conversation
    - Senior Project Manager (CAPD) – conversation
    - Carpenter Foreman (Kiewit) - statement

- Documentation Review – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:

- Metro Safety Rules and Procedures handbook (MSRPH)
- National Oceanic and Atmospheric Administration (NOAA) data
- MTPD Incident Report
- Atlantic Concrete Cutting Sawcut Plan
- Kiewit Operations Start Card (OSC)/Job Hazard Analysis (JHA)

- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
    - ARS (Audio Recording System) playback [Radio and Landline Communications]

Investigation

On Friday, June 3, 2022, at approximately 23:23 hours, a Construction Foreman with AceCo Demolition was seriously injured within the platform limits of Cheverly Station, Track 2. At the time of the event, the station was closed to customers and part of an ACS.

A review of written statements from reports conducted by Construction Inspectors of the Platform Rehabilitation Project determined the approximate timing of the incident. Closed Circuit Television (CCTV) cameras were not active due to power being de-energized to the entire station as a result of the construction activities being conducted. This limited the ability to observe potential similar trends of behavior demonstrated by personnel on scene.

Further consultation of these reports and written statements determined that at approximately 23:35 hours, emergency medical assistance arrived on scene, being summoned by a 911 call placed by a Kiewit Engineer, prior to their arrival.

Medical personnel were guided on to the ACS to assist the injured Foreman and were guided through the south parking lot, to the west end of the station. After retrieval from the track bed, the Foreman was transported from the incident site by rail cart to meet the responding medical personnel.

Review of the Audio Recording System (ARS) determined that a call was placed to the RTC at approximately 23:49 hours, by the Construction Inspector, reporting that a Foreman sustained a fractured leg from falling into the track bed, at approximately 23:30 hours. At approximately 23:50 hours, a call was placed by the RTC informing the AOM of the incident. At approximately 23:44 hours, MTPD, upon routine patrol, arrived on scene and observed medics rendering aid. MTPD remained on scene to assist. At approximately 23:54 hours, a call was placed to the RTC by a CAPD contractor on scene to report the same information. At approximately 23:55 hours, the AOM placed a call to the RTC instructing them to send out identifying information of the Foreman once able to do so.

On Saturday, June 4, 2022, at approximately 00:02 hours, MTPD advised a Prince George's County Medical Unit retrieved the injured Foreman and transported him to the Medstar Trauma Center for further assessment. Further consultation with various written statements from reports conducted by Construction Inspectors of the Platform Rehab Project and the MTPD final incident report suggest the Contractor was actually transported to Howard University Hospital due to the type and nature of his injuries.

At approximately 00:07 hours, the Construction Manager with the Office of Capital Program Delivery (CAPD) called the MAC directly to inform them of the incident. The Construction Manager informed the MAC that a Foreman was injured during an authorized demolition project as part of a restoration of the platform.

The Construction Manager stated the Foreman lost footing and fell from atop a piece of granite being removed from the platform, and the Contractor then landed in the track bed. The Construction Manager advised the granite then slipped away from the platform, landing on the track bed, pinning, and crushing the Foreman's leg underneath it.

Figure 2: Intact piece of granite, approximately 300-500 lbs.

The Construction Manager advised the Foreman was removed from the scene by ambulance. The Construction Manager also advised power was completely de-energized to the site for the duration of the construction.

The MAC took no further action at this time due to believing no further reporting or action was necessary.

Chronological Event Timeline

Time	Description
	06-03-2022
23:49:52 hours	Construction Inspector: Advised RTC AceCo Demolition employee had fallen onto the roadway and sustained a broken leg, paramedics were on scene. RTC: Acknowledged, requested identifying information of injured personnel. Construction Inspector: Would provide when available. RTC: Acknowledged. [Phone]
23:50:09 hours	RTC to AOM: Notified AOM of the incident. [Mic]
23:54:09 hours	CAPD Contractor: Placed a call to the ROCC advising of the incident. RTC: Requested further information. CAPD Contractor: Would provide when available. [Phone]
23:55:26 hours	RTC to AOM: Advised CAPD Contractor confirmed the incident and RTC instructed CAPD Contractor to send out identifying information of the Foreman once able to do so. [Phone]
23:56:00 hours	MTPD Officer: Arrived on scene of the incident. [Radio]
	06-04-2022
00:02:55 hours	MTPD Officer: Advised Prince George's County Medical Unit 862 transported the Foreman to the Medstar Trauma Center with the injured Foreman, advised non-life threatening, but major injuries. [Radio]
00:07:59 hours	Construction Manager to the MAC: Informed them of the incident so information can be passed to WMSC. ▪ Foreman injured during platform restoration project. ▪ Foreman injured when he was on top of a piece of granite that was cut. ▪ Foreman and the granite fell on to the track bed. ▪ Established cameras offline due to the power being down. ▪ The approximate time of the incident was 23:30 hours. [Phone]

Interview Findings

Witness Laborer

- The Laborer had been with AceCo Demolition for approximately two years, assigned as a Laborer and, when required, an on-site safety representative at multiple different demolition and construction sites.
- The Laborer stated he was not performing in a safety capacity on the incident site.
- The Laborer stated he was on site to assist in trash removal and at the time of the incident, he was on Platform 1 fulfilling that role.
- The Laborer stated he observed the Foreman fall into the track bed off Platform 2 and observed the large piece of granite fall and pin the Foreman's ankle to the rail.
- The Laborer stated he went to the Foreman's aid and lifted the 300-400lb piece of granite enough for the Foreman to retrieve his ankle from underneath.
- The Laborer stated he then assisted in transporting the Foreman to the awaiting medical personnel, off track, via a track cart.

- The Laborer stated he did not observe safety barricades or barriers in place around the pre-cut granite platform.
- The Laborer stated he took photographs, during the incident, to include the un-barricaded platform.

Injured Foreman

- The Foreman had been with AceCo Demolition for approximately 15 years, assigned as a Foreman at multiple different demolition and construction sites.
- The Foreman stated he was on Platform 2, concluding coordinating equipment removal, just prior to the incident.
- The Foreman stated he attempted to get a worker's attention on Platform 1, when he took a step closer to the edge of the platform, falling on to the track bed of Track 2.
- The Foreman stated the loose piece of granite then pinned his ankle to the rail of Track 2.
- The Foreman stated one of his workers lifted the piece of granite enough so he could free his ankle and attempt to stand, only to discover the ankle was no longer load-bearing.
- The Foreman stated he was then transported by rail cart to awaiting medical personnel.
- The Foreman stated he did not observe any barriers or barricades (typically orange cones with red rope) around the pre-cut granite, prior to stepping on the edge of the platform.
- The Foreman stated AceCo Demolition was not responsible for pre-cutting the granite, and it was a separate company that had conducted the work during the day.

Office of Safety Oversight (OSO)

Conversations with OSO determined personnel responded to the scene both during and after the incident. OSO stated a cease work order was placed immediately following the incident and a subsequent safety standdown was also ordered.

The WMATA Construction Safety Manager stated witnesses on scene and photographs he received advised that no barriers or barricades were in place warning of the potential hazard imposed by the pre-cut granite.

Figure 3: Injured Foreman having first aid administered.
**Note: Pre-cut nature of granite, and lack of safety barricades present, during the incident.*

The Construction Safety Manager stated a cease work order and safety stand down were implemented by OSO after the Foreman was evacuated. The next day, The Construction Safety Manager stated the area of the incident and adjacent work locations had orange cones with continuous red ropes placed in order to warn of the granite edge hazards.

Figure 5: The exact site of the pre-cut granite, marked off, post-incident

The Construction Safety Manager stated all granite edge removal sites were roped off at approximately 15:00 hours on June 4, 2022. The Construction Safety Manager stated any personnel crossing the barrier would be removed from the respective site. OSO instructed all contract-holders of this mandatory safety implementation.

The Construction Safety Manager advised this safety implementation would be passed along to all employees on all worksites during the pre-shift meeting. The Construction Safety Manager stated this pre-shift meeting occurs prior to every shift to pass along information and has an associated attendance log. The Construction Safety Manager advised the pre-shift meeting is the standard operating procedure for ACS, in addition to a Job Hazard Analysis (JHA).

Figure 6: New Carrolton Station having similar construction performed with newly implemented safety barricading.

Atlantic Concrete Cutting (ACC)

A conversation with the Project Manager of Atlantic Concrete Cutting (ACC) stated that ACC was responsible for the cutting of the granite slab that caused, then subsequently aggravated, the fall of the Foreman. The Project Manager stated the granite was typically immediately removed from the scene, by Kiewit Construction.

Figure 7: Granite being cut by an ACC employee with an industrial saw.

The Project Manager stated the duty of safety barricading or the installation of warning devices over the cut granite was not ACC's responsibility. The Project Manager also stated barricading or cordoning off areas was not a practice of ACC, to include work across other WMATA sites.

The ACC Sawcut Plan determined ACC was the only contractor performing the cutting of the granite, at the site of the incident, earlier during the day. The ACC Sawcut Plan does not articulate the installation of safety warning devices, during or after scheduled work. This plan was approved by CAPD.

Office of Capital Program Delivery (CAPD)

A conversation with the Senior Project Manager determined Kiewit was responsible for any cordoning or safety requirements in reference to all job sites, to include Cheverly Station. This included the safety cordoning of the pre-cut, unremoved granite, conducted by Atlantic Concrete Cutting. No formal documentation for this was received by SAFE.

Kiewit Construction

A conversation with the Safety Manager of Kiewit stated he believed the safety cordoning of the concrete cutting was Kiewit's responsibility. A review of the Kiewit/Atlantic Edge Sawcut Plan documentation determined no plan was articulated to include cordoning or warning of pre-cut granite, prior to removal. This plan was accepted by CAPD.

The post-incident report conducted by Kiewit Construction articulated that the Foreman was aware of the dangers of treading on the pre-cut granite during a pre-shift meeting. The post-incident report also articulated the Operations Start Card (OSC) did not adequately document the verbal warnings discussed during the pre-shift meeting. This OSC also was not dated but was addressed in an email as being the OSC for the day of the incident, for the incident site only. This

OSC was confirmed as the correct one due to a conversation with the Kiewit Safety Manager and multiple signatures matched the witness statement's signatures provided.

Kiewit also provided a witness statement for a Carpenter Foreman that stated all personnel were advised not to step on the pre-cut granite.

A review of associated Kiewit sites determined red-roping was conducted only after the incident had taken place.

Follow-Up with Injured Foreman

A follow-up conversation with the Injured Foreman did not clarify the above information, as he stated he had sought legal representation and would answer no further questions pertaining to the incident. Prior to terminating the conversation, the Foreman stated he had a second surgery addressing the injuries to his right ankle.

Office of Emergency Preparedness (OEP)

A conversation with the Director of OEP determined the reason behind not notifying WMSC within two hours was due to Operator's concept of an ACS not requiring report to WMSC. This has since been corrected with remedial training and briefing on reporting requirements.

Weather

On June 3, 2022, at the time of the incident, NOAA recorded the average temperature as 71 °F, with no observable weather phenomena. Weather was not a contributing factor in this incident (Weather source: NOAA) – Location: Washington, DC.)

Human Factors

Signs and Symptoms of Fatigue

We evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No sign of fatigue was indicated by the available data. The Injured Foreman reported feeling fully alert at the time of the incident. The Injured Foreman reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk

We evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The Injured Foreman reported keeping a regular sleep schedule in the days leading up to the incident. The Injured Foreman worked Night Shift in the days leading up to the incident. The off-duty period preceding the incident was less than 10 hours long which may impact the opportunity for sufficient sleep. This was a comparable amount for the Superintendent Contractor's usual workday sleep durations. The Superintendent Contractor reported no issues with sleep.

Post-Incident Toxicology Testing

Post-Incident Toxicology Testing was not conducted as the Injured Contractor was transported by medical personnel and required surgery, post-incident.

Findings

- A cease-work order was immediately implemented by SAFE following the incident.
- The Foreman sustained a dislocated right ankle with 4 fractured bones as a result of the crush injury.
- The Foreman has had two surgeries to attempt to repair the damage to his ankle.
- Atlantic Concrete Cutting (ACC) conducted cutting of the granite prior to the Foreman commencing work at the same site.
- Witness statements, photographs and interviews confirmed no safety barricades or visual indicators were installed around the pre-cut granite.
- The Kiewit/Atlantic Edge Sawcut Plan did not articulate the need for safety warning devices over pre-cut, unremoved granite.
- The post-incident report by Kiewit articulated the Foreman was warned not to tread on the pre-cut granite during the pre-shift meeting, however, the OSC does not articulate this warning.
- The Carpenter Foreman stated all personnel were advised of the pre-cut granite, prior to shift.
- Significant delay between the incident and MAC notification. When the notification was issued, it incorrectly articulated the incident as occurring at 11:30 hours.
- WMSC were not notified within two hours of the incident.
- The Contractors on scene did not immediately report the incident to the ROCC.

Immediate Mitigation to Prevent Recurrence

- Cease work order placed by OSO and Safety Stand down put in place
- OSO ordered all contractors to assemble barricades at every site (Cheverly, Landover, and New Carrollton Stations) over the pre-cut areas to avoid contact with the pre-cut granite, outside of scheduled removal.

Probable Cause Statement

The probable cause of this event was Metrorail and its contractors' inadequate review, execution and oversight of work safety plans. This led to unmarked fall protection for personnel working on the station platform.

SAFE Recommendations/Corrective Actions

Corrective Action Code	Description	Responsible Party	Due Date
101089_SAFECAPS_SAFE_001	Safety Stand Down to reinforce safety procedures.	SAFE/OSO	Completed
101089_SAFECAPS_CAPD_002	Implement a safety warning device for pre-cut granite at the site of the incident.	CAPD/Kiewit Construction	Completed
101089_SAFECAPS_CAPD_003	Implement safety warning systems for all neighboring Kiewit ACS.	CAPD/Kiewit Construction	Completed
101089_SAFECAPS_CAPD_004	Implement a more comprehensive OSC/JHA for hazard documentation and avoidance.	CAPD/Kiewit Construction	12/31/22
101089_SAFECAPS_CAPD_005	Implement more robust guidelines for future projects requiring edge or ledge work based on lessons learned.	CAPD/Kiewit Construction	12/31/22
101089_SAFECAPS_SAFE_001	Update process to ensure SAFE and CAPD perform timely audits and reviews of contractor's safety plans	CAPD/SAFE	12/31/22
101089_SAFECAPS_SAFE_002	Remedial training for MAC Operators in reference to reporting incidents to WMSC	OEP	Completed

Appendix A – Interview Summary

Witness Laborer

The Laborer stated he had been with AceCo Demolition for approximately two years, assigned as a Laborer and, when required, an on-site safety representative at multiple different demolition and construction sites. The Laborer stated he had RWP Level 1

The Laborer stated he commenced his shift at 18:00 hours where he was assigned to remove trash as pieces of the platform were being removed from Platform 1.

The Laborer stated, just prior to the incident, the Foreman was on Platform 2, directing personnel in work taskings.

The Laborer stated the Foreman took a step on to a piece of the platform that had been previously cut by another demolition company he speculated to be Atlantic Construction, during the day.

The Laborer stated the Foreman then fell on to the track bed and the piece of platform fell on to his right ankle, crushing it.

The Laborer stated he immediately went to the Foreman's aid and began attempting to flag down supervisors and safety personnel to notify them of the incident. The Laborer stated he then lifted the piece of platform off the Foreman's ankle, allowing the Foreman to drag his ankle out from underneath the platform piece.

The Laborer stated he observed the Foreman's ankle unnaturally bent out of shape.
The Laborer stated he then assisted other staff with evacuating the Foreman out of the roadway by transporting him, via rail cart, to medical personnel who were staging off the roadway, outside of the station.

The Laborer stated he spent the remainder of the shift completing reports and documents in reference to the incident.

The Laborer stated he also observed personnel begin to place safety warning devices in reference to the pre-cut platform, after the incident occurred. The Laborer stated he was uncertain who these personnel were.

The Laborer stated he believed the piece of platform he lifted was approximately 300-400 lbs.

The Laborer stated he observed no visual safety devices in place warning of the pre-cut platform along Track 2 and that he took photographs of the platform without the safety devices, during the incident.

Injured Foreman:

The Foreman stated he had been with AceCo Demolition for approximately fifteen years, assigned as a Foreman at multiple different demolition and construction sites. The Foreman stated he had RWP Level 2.

The Foreman stated at approximately 23:30 hours, he had just concluded directing a team of workers in the demolition of the Platform 1 granite, from Platform 2. The Foreman stated he was

over on the Platform 2 side moving machinery, via crane staged on the tracks, from Platform 2 to Platform 1.

The Foreman stated he attempted to gain the attention of one of his workers, on Platform 1, while still on Platform 2. The Foreman stated he walked from where the crane was located to approximately the middle of Platform 2 where he stated his vision to the worker was blocked across the track, and no amount of yelling or signaling was being observed by the worker.

The Foreman stated he then proceeded to move closer to the edge of the platform, standing on top of a piece of pre-cut granite that he was unaware was not still attached to the platform.

The Foreman stated he took one step on to the pre-cut platform and a piece of the platform granite gave way and he slipped over the edge of the platform, falling into the track bed, his right ankle landed on one of the rails, and the loose piece of granite landing on top, crushing, and pinning it.

The Foreman stated one of his employees came to his aid and lifted the stone enough for him to free his ankle. The Foreman stated he attempted to stand, however, fell immediately as he was unable to support his own weight with his injured ankle.

The Foreman stated he was placed on a rail cart and transported to awaiting medical personnel, off the roadway, and from there he was transported by ambulance to the hospital. The Foreman stated it took approximately 15 to 20 minutes from the time of injury to transport to the hospital. The Foreman stated he fractured four bones in his ankle and dislocated the same ankle.

The Foreman also stated he did not observe any safety barricades or barriers precluding him from initially stepping on the pre-cut granite. The Foreman stated the warning device used to alert personnel of pre-cut granite is typically orange cones with red rope notating an area of concern.

The Foreman stated the cutting of the platform granite was not performed by AceCo Demolition, as the company does not cut granite, and the cutting was performed sometime during the day. The Foreman stated he was unfamiliar with the company who performed the cutting.

Appendix B – Kiewit/Atlantic Edge Sawcut Plan (03/2022)

WMATA 4 Station Rehab

Platform Edge Sawcut

Kiewit Infrastructure Co.

	Date Completed
Work Plan Brainstorm	2/28/2022
Work Plan Green Light	3/4/2022
Work Plan Initial Review	
Work Plan Final Review	
Work Plan Pre-Activity Meeting	

Work Plan Risk Level (Circle One) Low **Medium** High

Reviewed and Approved By:

[redacted]

Kiewit

Ready to go to Work Checklist

WMATA 4

Work Plan Operation:	**Prepared By:**
Location:	
Contractor/Subcontractor:	**Date:**
Specification Number:	

Indicate (X) which submittal components are required for this operation and the submittal status:

Components:	Approved	Approved as Noted	Rejected
Shop Drawings			
Calculations			
Product Information / Cut Sheet			
Samples			
Design Drawings			
Certificate / Complaince Statements			
Operations + Maintanance Manual			
Workplan / JHA / SDS			
Warranty			
Other [Specify]			

Start Work Checklist:

	Yes	No	N/A	Comments
Do all members of the crew have a WMATA Badge?				
Do all members of the crew have RWP training? (If needed)				
Have all submittals been approved or approved as noted?				
For subcontractor operations, is all Kiewit support on site and ready to start work?				
Has a work plan been printed for the field?				
Are all required permits in place (concrete penetration, Dig Safe, etc)?				
Has safety orientation been completed by all crew members?				
Are all safety specific trainings completed (confined space, manlift, etc.)?				
Reviewed and Approved By:				

Station Manager **Date**
(Low Risk)

General Superintendent / Construction Manager **Date**
(Medium Risk)

Project Manager / Project Director **Date**
(High Risk)

Kiewit	FIELD PACK ROADMAP	PROJECT NAME:	WMATA Platform Rehabilitation 4
		PROJECT NUMBER:	104555

OPERATION:	Atlantic Concrete Sawcutting platform Edge
LOCATION:	D11, D12, D13
PLAN COMPLETED BY:	[redacted]lantic Concrete — PLANNED FOREMAN: Atlantic/Station Foreman
SCOPE OF WORK:	**NOTE - ALL OPERATIONS REQUIRING PENETRATION (CHIPPING, DRILLING, CUTTING, ETC...) OF CONCRETE REQUIRE A KIEWIT "CORE DRILL DEMO PERMIT" DATED 04/14/21 REV. 3 FOUND IN THE WORK PLAN FOLDER WHERE THESE TEMPLATES WERE FOUND**
	Score cut location to be hand demoed. Clean cut location to be removed. Cut into manageable pieces for removal.

LIFE SAVING ACTIONS CATEGORIES

1	[ ]	Confined Space	6	[x]	Temporary Stru
2	[x]	Lifting and Rigg	7	[ ]	Trenching & Exc
3	[x]	Cranes	8	[ ]	Utilities Overhead
4	[ ]	Maintenance of	9	[x]	Human Equipm
5	[ ]	Energy Isolation /	10	[ ]	Working at Heights Fall
			11	[x]	Track

TOP 5 QUALITY RISKS

1. Correct location of cuts
2. Adjacent permanent materials (concrete splatter) on tracks
3. Getting blade lodged in cut
4. Cutting top bar during score cut
5. Transverse and Longi cuts not full depth

TOP 5 ENVIRONMENTAL HAZARDS

1. Silica dust
2. Concrete slurry
3. Fueling Sawcut
4.
5.

ENVIRONMENTAL CONTROLS REQUIRED

1. Water system connected to saw to mitigate silica dust.
2. Vaccumn system to suck all slurry and dispose.
3. Fuel Sawcuts at while not running and use funnels as to not allow any spillage.
4. Proper storage and disposal of slurry
5.

CHECKLISTS/DRAWINGS REQUIRED

IPG drawings as part of this work plan with the crew. (Double check Survey layout)

CREW MAKEUP

DESCRIPTION	QUANTITY
2ea 3 man crews all three stations as needed	16 max

PERMANENT MATERIALS

DESCRIPTION	QUANTITY
Saws 2 each station	
Water Hose	
Ring Saw/Chain Saw for transverse Cuts	
55 Gal drums with shop vac on it	1 per saw

STANDARD/SPECIALIZED PPE

DESCRIPTION	QUANTITY
Extension cords	16
Face Shields	each person
Hearing protection	each person
Shovels and Brooms	per crew
GPR Machine	1
Heavy Duty Shop Vac	4
RAWL pins 1/4" x 2-3/4"	100

EQUIPMENT AND/OR SPECIALIZED RIGGING

DESCRIPTION	QUANTITY	TRAINING
Wire Rope Slings 1/2" minimum	2	operator and rigger
Shackles 5/8" minimum	3	operator and rigger
Husqvarna 9400 Diesel Slab Saw (2106 lbs)	4	Yes
Diamond Products C67574 Diesel Saw (2300 lbs)	2	Yes

SUBCONTRACTORS

NAME	SCOPE
Atlantic Sawcutting	Cut Edge

SURVEY

DESCRIPTION	STEP REQUIRED FOR
Offset from CL on track-	Prior to Mobe
Double Checked by Station team and Handler	

HOLD POINT?	WORK PACKAGE PROCEDURE/STEP-BY-STEP
Step 1	Verify survey offsets in place and shoring is in place and TSOD manager has signed off. Do on the spot pick plan for flying up saws, skids, tools.
	>Get with station Superintendent for Kiewit support in using rail trucks for areas without crane. Also Kiewit riggers to rig and fly equipment.
Step 2	Cover the tracks and track bed in filter fabric. Set up sawcuts, vaccumns, 55 gallon drums, extension cords, water source.
Step 3 (Hold)	Snap lines off survey layed out offset. Need one line for score cut and one line for through cut. Also paint lines for tranverse cuts. Hold point is to verify lines in right location with station survey manager or handler.
Step 4 (Hold)	GPR scan to determine depths of rebar, adjust score cut depth to not touch the existing rebar. Stay minimum 1" above bar.
	>If not absolute sure of rebar depth do not proceed with score cut until slab is removed.
	>Review sawcut permit for any existing utilities before moving to step 5.
Step 5	Cut first run of longitudinal Cut (1/2 the slab) and tranverse cuts 2'-4" on center at every granite joint
Step 6	Once all tranverse cuts are through make final pass to completley cut the edge from the platform.
Step 7	Use concrete chain saw or ring saw to completley cut through any sections missed by walk behind saw.
	>Inspect entire edge for any uncut crossings, verify slab edge is completley cut away from the platform.
Step 8	Clean up entire platform, remove fabric as needed by station Superintendent. Fly all equipment, 55 gallon drums concrete slurry and tools down.
	>Need on the spot pick plans and Kiewit designated riggers to assist in picks.
	Notes:
	Have back up saws, saw blades on site in case anything breaks down.
	Have cleanup kits on site in case equipment starts leaking oil, fuel.
	When picking 55 gallon drums or anything for that matter get with Station superintendent and the material handling foreman before moving forward.
	Each step shall require a a task write up on the start card.

CHANGES TO THE PLAN

REQUIRED SUBMITTALS AND PERMITS

NUMBER	DESCRIPTION
	Work Plan Approval- Via Selective Demo Submittals

ADDITIONAL ITEMS (WHEN APPLICABLE)

ITEM	YES	NO	N/A
HAZARD ANALYSIS - ALWAYS REQUIRED	x		
QUALITY ANALYSIS - ALWAYS REQUIRED	x		
SPECIALIZED RIGGING TRAINING	x		
CONFINED SPACE TRAINING			x
CONFINED SPACE PLAN			x
DESIGNATED OPERATORS	x		
HAND SIGNAL TRAINING			x
PULMONARY FIT TESTING		x	
BLOOD LEAD TESTING			x
APPLICABLE CONTRACT DRAWINGS	x		
CONTINGENCY PLAN	x		
SCHEDULE	x		
DAILY MANPOWER AND EQUIPMENT SCHEDULES	x		
METHOD ANALYSIS/PLANNED SHUTDOWN			x
ACCESS / EGRESS FOR EACH LOCATION	x		
SITE LAYOUT AND/OR ACCESS PLAN	x		
MATERIAL HANDLING PLAN	x		
MATERIAL STORAGE AND LAYOUT PLAN			x
CRANE PICK DRAWINGS / CRITICAL LIFT PLAN	x		
LIFT DRAWINGS	x		
FORMWORK DRAWINGS			x
POUR SEQUENCE			x
CONCRETE WASHOUT LOCATION			x
FALL PROTECTION PLAN			x
TRAFFIC CONTROL PLAN			x
TRUCK MANAGEMENT PLAN			x
EXCAVATION PLAN			x
SURVEY PLAN	x		
ENVIRONMENTAL CHECKLIST/CONTROLS	x		
OTHER			
OTHER			

REVIEW WITH CREW

NAME	SIGNATURE	DATE

WORK PLAN REVIEW AND SIGN OFF

LOW	MEDIUM	HIGH
	SEE ATTACHED COVERSHEET FOR SIGNATURES	

SKETCHES AND CHANGES:

Project Name:	WMATA Platform Rehabilitation 4
Project Number:	104893
Operation:	Sawcut Edge Platform

BUDGET AND GOAL							
CODE	DESCRIPTION	QTY	UNIT	BUDGET (MHr/UNIT)	BUDGET (MHr)	GOAL (MHr/UNIT)	GOAL (MHr)
	Sawcut Sub Manhours	3600'	LF	.06/LF	216	.05/LF	180
TOTAL							

Kiewit Infrastructure Co.
Operation Step By Step Procedure

DATE PREPARED: 3/15/2022 **PREPARED BY:** [redacted] Atlantic Concrete

OPERATION: Platform Edge Sawcut

STEP NO.	1	Verify survey offsets in place and TSCD manager has signed off on shoring. Do on the spot pick plan for flying up saws, skids, tools. (Kiewit crane support, rail cart support to assist in all material handling)

PICTURE / SKETCH:

SAFETY HAZARDS	MITIGATION PLAN
Overhead Loads	Follow station material handling plan for picking anything. If there is no plan in place get with handler to determine moving forward.
TSCD- Slab Edge Shoring	Before any cutting begins verify with station Superintendent and double check shoring is in place.
Skid boxes	Use only job specific approved skid boxes. Needs tags and ratings on box.

Kiewit Infrastructure Co.
Operation Step By Step Procedure

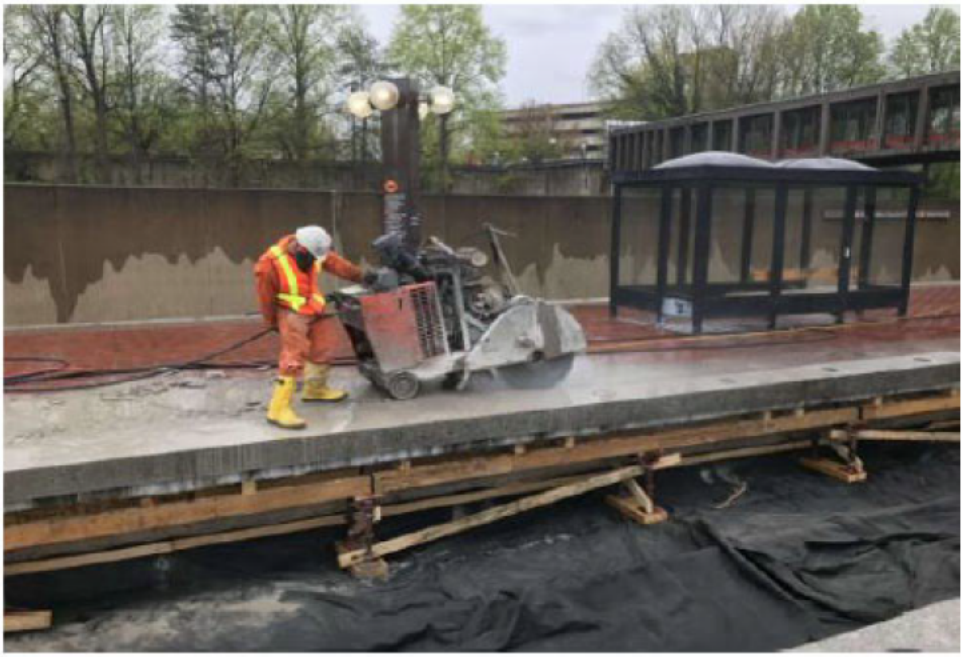
DATE PREPARED: 3/15/2022 **PREPARED BY:** [redacted] Atlantic Concrete

OPERATION: Platform Edge Sawcut

STEP NO. 2

Verify filter fabric fully covering tracks and all ballast. Set up sawcuts, vacuums, 55 gallon drums, extension cords, water source. Set up CAZ around entire work area that the saws will be working, move CAZ as work progresses and cleanup behind is complete.

PICTURE / SKETCH:



SAFETY HAZARDS	MITIGATION PLAN
Slips Trips and Falls	Nothing hits the ground, everything needs to be tight and right when layed out as to not effect simops or the crew cutting.
Electrical shock	Keep cords off the ground, away from water and out of saws line of cut.
Slips Trips and Falls	CAZ to keep simops away from saws and cutting areas, keep them out of operations slurry being left behind

Kiewit Infrastructure Co.
Operation Step By Step Procedure

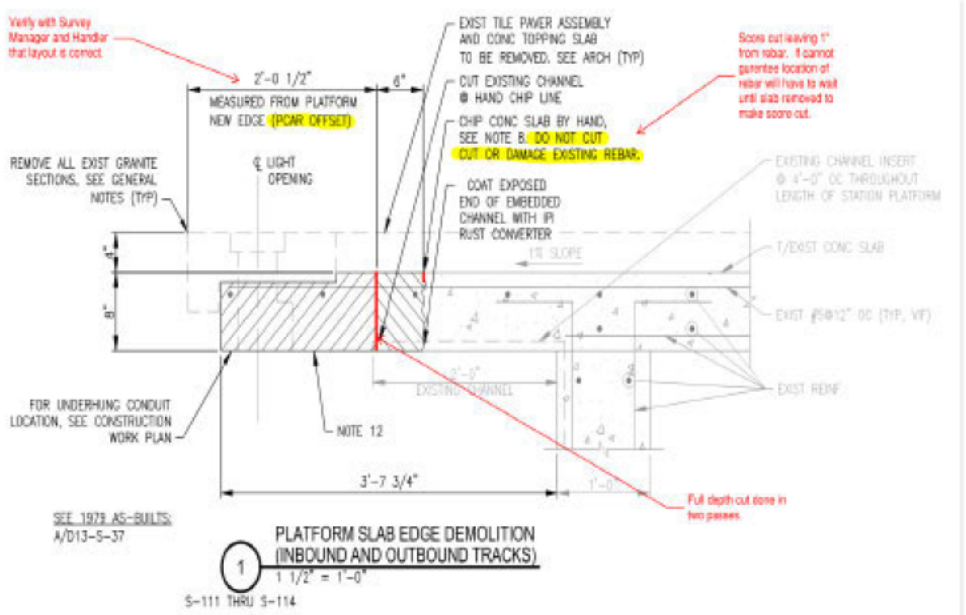
DATE PREPARED: 3/15/2022 **PREPARED BY:** [redacted] Atlantic Concrete

OPERATION: Platform Edge Sawcut

STEP NO. 3 and 4

Snap lines off survey layed out offset. Need one line for score cut and one line for through cut. Also paint lines for tranverse cuts. Hold point is to verify lines in right location with station survey manager or handler. GPR scan to determine depths of rebar, adjust score cut depth to not touch the existing rebar. Stay minimum 1" above bar. If cannot be 100% sure of rebar location wait until slab is removed before score cut is made. Review sawcut permit for any work to progress.

PICTURE / SKETCH:



SAFETY HAZARDS	MITIGATION PLAN
Knee Damage	Be sure layout guys have proper knee protection for kneeling while snapping lines.
Falling off Platform	Discuss with crews in keeping eye on edge of platform at all times as to not step back/off and fall to tracks

Kiewit Infrastructure Co.
Operation Step By Step Procedure

DATE PREPARED: 3/15/2022 **PREPARED BY:** [redacted] Atlantic Concrete

OPERATION: Platform Edge Sawcut

STEP NO.	5 and 6	Cut first run of longitudinal Cut (1/2 the slab), cut score cut entire length if applicable per step 4, make tranverse cuts (8' on center or at every granite joint) on paint layouts. Once all tranverse cuts are through make final pass to completley cut the edge from the platform.

PICTURE / SKETCH:

SAFETY HAZARDS	MITIGATION PLAN
Cuts/Abrasions	Keep all guards intact, keep CAZ up to keep everyone away from saw blade. At no time should blade be engaged with someone on the blade side of the saw.
Falling off Platfrorm	Sawcut should never be backing up to edge, always face edge as to not roll off.
Flying debris	Face shields to be worn during entire operation
Slippery Surface from Slurry	Follow behind with shop vac to suck slurry as cutting.

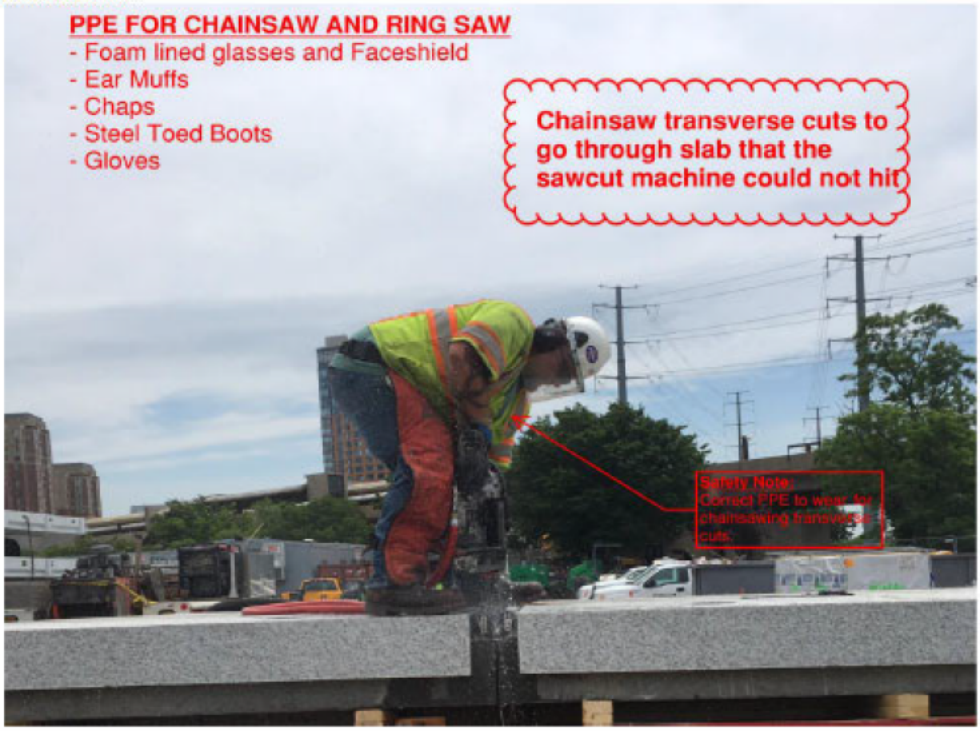
Kiewit Infrastructure Co.
Operation Step By Step Procedure

DATE PREPARED: 3/15/2022 **PREPARED BY:** [redacted] Atlantic Concrete

OPERATION: Platform Edge Sawcut

STEP NO.	
7	Use concrete chain saw or ring saw to completley cut through any sections missed by walk behind saw. >Inspect entire edge for any uncut crossings, verify slab edge is completley cut away from the platform.

PICTURE / SKETCH:



SAFETY HAZARDS	MITIGATION PLAN
Pinch Points	Keep hands and fingers out of pinch point between slabs
Cuts Abrasions	If using the concrete chain saw chaps, must be worn at all times, per the attached PPE guide

Kiewit Infrastructure Co.
Operation Step By Step Procedure

DATE PREPARED: 3/15/2022 **PREPARED BY:** [redacted] Atlantic Concrete

OPERATION: Platform Edge Sawcut

STEP NO.	8	Clean up entire platform, vacuum clean, remove fabric as needed by station Superintendent, Fly all equipment, 55 gallon drums concrete slurry and tools down.

PICTURE / SKETCH:

SAFETY HAZARDS	MITIGATION PLAN
Overhead loads	Certified kiewit station riggers to make all picks per station pick plans.
Trip Hazards	Remove any trip hazards and breakdown CAZ to set up the next crew for success.

SILICA DUST CONTROL HAZARD ANALYSIS

DATE PREPARED:	3/15/2022	PREPARED BY:	[redacted] Atlantic Concrete	Location of Operation:
OPERATION:		Platform Edge Sawcut		Outdoors ☒ Indoors ☐

Equipment/Task	Table 1 Controls	≥4 Hours
Stationary Mason Saw	☐	☐
Power Saw (any blade)	☒	☒
Power Saw for Cement Board	☐	☐
Walk Behind Saw	☒	☒
Drivable Saw	☒	☒
Rig Mounted Core Saws/Drills	☐	☐
Impact/Hammer Drills	☐	☐
Dowel Drilling Rigs	☐	☐
Vehicle Mounted Drilling	☐	☐
Jack Hammer/Chipping	☐	☐
Grinders (mortar removal)	☐	☐
Grinders (other uses)	☐	☐
Walk Behind Milling Machines	☐	☐
Heavy Demo Equipment	☐	☐
Cleaning/Sweeping	☒	☒

Work ≥ 4 hours must be reviewed by the Project Competent Person or Safety Department prior to start of operation

Engineering Controls	Required
Wet Method	☒
Dust Collection System	☐
Ventilation/Exhaust	☐
Partial Isolation	☐
Full Isolation	☐
Shroud/Barrier	☐
HEPA Vacuum	☐
Natural Ventilation	☐
Manufacturer Instructions:	☐
SDS Instructions:	☐
Other Controls:	☐
Other Controls:	☐
Other Controls:	☐

Personal Protective Equipment	Required
Half Face Respirator	☐
N95 Dust Mask	☐
Foam Lined Glasses	☐
Goggles	☐
Appropriate Gloves	☐
Ear Plugs/Muffs	☒
TyVek Suit	☐
Face Shield	☒
Toe/Metatarsal Protection	☐
Kevlar/Leather Caps	☒
Manufacturer Instructions:	☐
SDS Instructions:	☐
Other PPE:	☐

Foreman Signature

Superintendent Signature

Competent Person Signature

	Meets Table 1 (< 4 Hours)	Meets Table 1 (> 4 Hours)	Exceeds Table 1
DESCRIPTION OF TASK		Sawcutting, Sweeping and sucking wet slurry.	
DESCRIPTION OF ENGINEERING CONTROLS		Wet system on saws at all times.	
DESCRIPTION OF WORK PRACTICES		Periodically pay close attention to water system. Be sure absolutley no dust.	
DESCRIPTION OF RESPIRATORY PROTECTION		None required as long as no dust present, wet system needs to be in place at all times.	
DESCRIPTION OF HOUSEKEEPING METHODS		Clean slurry as you go, do not let it dry as will create silica dust once dried.	
DESCRIPTION OF WORK AREA RESTRICTIONS/ THIRD PARTY EXPOSER		CAZ to be set up as warning for the work but no specific restrictions necessary.	

Rigging Planning Form - 584RP

Lift Description:

Purpose:

Load Weight: ☐Actual ☐Estimated

2850 Lbs

Slings:

	Type	Size	WLL	Inspection
A.	Straight,	1/2",	2.5T,	Daily
B.				
C.				
D.				

Hardware:

	Type	Size	WLL	Inspection
E.	Carbon,	1/2",	2.5T	Daily
F.				
G.				
H.				
I.				
J.				
K.				
L.				
M.				

Approximate Rigging Weight:

100 Lbs

Total Suspended Weight:

2950 Lbs + 100= 3050 lbs

(add load weight and approximate rigging weight)

>>Inform LHE operator of suspended weight<<

Center of Gravity: ☐Symmetrical ☐Offset

Load Handling Equipment (LHE): ☐ Crane ☐ Hoist ☐ Winch ☐ Other _____

Sketch of Load Handling Method:

Note: Annotate sling tension on rigging components

Abbreviations

WRS - Wire Rope Sling	SHR - Swivel Hoist Ring
ACS - Alloy Chain Sling	ML - Masterlink
SWS - Synthetic Web Sling	SHK - SPA Shackle
SRS - Synthetic Roundsling	SB - Spreader Bar
SRPS - Synthetic Rope Sling	CH - Chain Hoist
BSK - Basket Hitch	LH - Lever Hoist
CHK - Choker Hitch	WCH - Winch
SP - Sling Protection	LL - Lifting Lug

Rigging Team

Lift Director _____

Qual. Rigger _____

Rigger _____

Rigger _____

Signaler _____

Tagline _____

LHE Operator _____

Problems encountered during move:

Hoisting Saw: Straight hitch to shackle attached to picking point only on saw.

Hoisting 55 Gal Drum: Using barrel picker and straight line wire rope sling hoist load onto rail carts or down to ground level.

RIGGING PLAN This document is intended for rigging plan development only; not intended to replace a critical lift plan. Load handling equipment capacity confirmation is the responsibility of the load handling equipment operator.

Date:

	Title Inspection & Test Plan	REV. 0 6/17/2019 PKS-ITP-XX_XX_XX
Project Name: **Project Number:**	Abbreviations for Inspection Type & Responsibility Construction: S (Superintendent) FE (Field Engineer) F (Foreman) Quality: PQM (Project Quality Manager) QCI (Quality Control Inspector) Client: CI (Client Inspector) Other: TP (Third Party) AI (Authorized Inspector) Type: H (Hold Point) V (Verify) A (Approve) R (Responsible) M (Monitor) W (Witness)	

Activity Description	Spec/Code	Inspection and Testing Requirements	Documentation			Inspection Type / Person			
			Document Name / Tag # / Visual	Turnover Doc	Frequency	Const.	Quality	Client	Other

Prepare		Review		Approve	
Lead Field Engineer (Print / Sign)	Date	General Superintendent (Print / Sign)	Date	Project Manager (Print / Sign)	Date
Quality Engineer (Print / Sign)	Date	Construction Manager (Print / Sign)	Date	Project Quality Manager (Print / Sign)	Date
Other (Print / Sign)	Date	Project Engineer (Print / Sign)	Date	Client Representative (Print / Sign if Applicable)	Date

All items above have been reviewed and approved prior to implementation of this plan.

Work Operation Quality Analysis
(What Can Go Wrong and What Will We Do to Prevent Poor Quality Occurrences)
Build It Right The First Time
Meet or Exceed Client Expectations with a Well Thought Out Quality Analysis

Prepared By: Ted Nielson/Atlantic Concrete

Operation: Platform Edge Sawcut

Quality Requirements (Include Key Inspections, Hold Points and Checklist Frequency):

1. Survey Manager Approval
2. Platform Superintendent Approval
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

State Work Step:	What is the Risk---What can go wrong?	Mitigation-What Will we do to prevent poor quality occurrence?	Responsibility
Layout of sawcut lines	Be in the wrong spot, creating a snowball effect of problems	Review survey layout work plan for edge of slab. If not there get one.	Kiewit Handler/ Station Survey manager
Sawcut Splatter/Slurry	Stain/Damage Tracks or adjacent Structures	Prior to engaging sawcut check entire area, cover with poly or filter fabric as	Atlantic

State Work Step:	What is the Risk---What can go wrong?	Mitigation-What Will we do to prevent poor quality occurrence?	Responsibility

Category / Sub-Category	Question Text	Question Type	Choices/Inputs	Required Answer (if any)
1.0 Material				
2.0 Survey				
A	Has survey layout been verified to center of tracks final location?	choice	Yes/No	Yes
B	Has rebar depth been identified for scor cut? (Can't cut the rebar during score cut)	choice	Yes/No	Yes
C	Has offset re-snap been verified by Station FE? Check the lines match the drawings.	choice	Yes/No	Yes
3.0 Pre-Install				
	Has sawcut permit been issued and ready to go to work?	choice	Yes/No	Yes
	Has shoring been signed off TSCD?	choice	Yes/No	Yes
	Is Filter Fabric in place under edge and over tracks prior to cut?	choice	Yes/No	Yes
4.0 Installation				
5.0 Post-Install				
	Has all slurry been cleaned up and any adjacent structures beened cleaned?	choice	Yes/No	Yes
	Has Tracks and ballast been verified as to not be dirty or damaged?	choice	Yes/No	Yes
6.0 Signatures				

Kiewit Superintendent_____

Sub Contractor Rep_____

Work Plan Name / Number:	Platform Edge Sawcut
Person completing this check list/work plan:	[redacted] Atlantic Concrete
Sub-Contract Handler / Subcontractor Involved:	[redacted]
Kiewit Environmental Manager	[redacted]

Environmental Aspect	Conditions	Y, N, N/A (Explain)
Air	Will your activities result in the production of dust (demolition, painting, blasting, etc.)? If so, what dust suppression controls will be implemented?	Y, Water System to be used
	Will you be bringing a generator on site?	N
	Are you aware that the idling policy in District of Columbia is no longer than 3 minutes and in the State of Maryland it is no longer than 5 minutes?	Y, Saw cut machine, if not in use for more than 3 minutes will be shut off
Chemical Tracking / Storage	Have you provided all Safety Data Sheets for EVERY chemical or product you are bringing on site in your work plan and to the Kiewit Safety and Environmental Departments?	N/A
	Have all products / chemicals been entered into the Chemical Tracking Log on Kiewit's Sharepoint site? This will include quantities, volume, location, etc. In order to comply with Emergency Planning and Community Right to Know Act (EPCRA).	N/A
	Are you aware that all containers that store product or chemicals must be labeled properly? [Consistent with the OSHA Hazard Communication System]. This includes primary containers (containers that still have the original manufacturers label on them) as well as secondary containers, e.g. pump sprayers, [you will need to place own label and hazard statements/warnings on them].	N/A
	Are you aware that all containers must be stored closed and covered (lids on tight) when not in use?	N/A
Equipment	Have you provided a complete equipment list in your work plan for all equipment brought on site? [for equipment that either uses fuel or creates significant noise]	Y, Saw cut machines
Hazardous Material Assessments	Are you aware that the project has conducted assessments for Asbestos (ACM), Lead-based paint (LBP), and PCBs?	Y, No Present where cutting
	Will your activities potential disturb any material or locations identified as having ACM, LBP, or PCBs? If you are disturbing or removing ACM or LBP, there are significant regulations that must be complied with. *You must get with Safety and Environmental Departments ASAP.*	NA
Noise	Are you aware of the Prince George's County and District of Columbia noise variance requirements for work at all the stations?	Y
	Will you be conducting activities at night or on the weekends?	Both
Process Water	Will your activities produce process wastewater (e.g. concrete slurry/wash water, power washicleaning wastewater, hydrostatic testing, epoxy/grout wash water, etc.)?	Y, Will be sucked up into 55 gallon drums and disposed of as concrete waste.
	If you are pouring concrete, saw cutting concrete, does the workplan describe the plan to collect, contain, and dispose of the process water?	Y
	If you are power washing or cleaning does the workplan describe the plan to collect, contain, and dispose of the process water?	Y
	If you are conducting hydrostatic testing, have you reviewed the permit requirements from the Department of nergy and Environment and the Maryland Deprtment of the Environment, and have a plan to properly manage and dispose of the process water?	NA
	Are you aware that vehicle and equipment power washing is not allowed on site?	NA
	Have all your final waste disposal vendors been approved by Kiewit Environmental Department?	Y
Spill Prevention, Control, Reporting	Are you aware of Kiewit's project wide SPCC (Spill Prevention, Control, and Countermeasure) plan?	Y
	Will you be bringing on a tank or non-mobile piece of equipment with an oil/petroleum storage capacity greater than 55 gallons?	N
	Are you aware that all tanks, equipment, or other oil storage containers greater than 55 gallons must be accompanied by a spill kit and must have or be stored in sized secondary containment (110% capacity)?	NA
	Are you aware that all oil spills, no matter the size, must be cleaned up immediately and reported to the Environmental Manager immediately?	Y
	Are you aware that you must have spill kits available within your work area to respond to an oil spill?	Y, Station teams have them also our Demo contractor
	If you need to fuel equipment, are you aware of the project's fueling procedures?	Y
Stormwater	Will you be conducting any type of land disturbance (clearing and grubbing, excavating, etc.)	N
	Will you be disturbing land greater than 2,500 sq. ft? If so, it may require a land disturbance permit / stormwater permit from the County or State.	N
	Are you aware that if there are stormwater drains or inlets in your work area, they must be protected with proper erosion and sediment control (ESC) devices (e.g. gutter-buddys, grate-gators, drop-inlet protection, etc.)?	N
	Are you aware that no materials are to be tracked on to roads and sidewalks? If material is tracked out it must be cleaned up immediately.	N
	Will your activities require any type of dewatering or pumping water (including ponded water after a storm)?	N
	Are you aware that dewatering of stormwater is only allowed if it is free of a sheen and with the use of a filter bag to an area on site that will not cause erosion?	N

Environmental Aspect	Conditions	Y, N, N/A (Explain)
Training	Are you aware that all crews must complete environmental toolbox talks? Completed and signed Env toolbox talks must be submitted to the Env Manager.	Y
Waste Management - Solid	All construction activities produce waste. Does your workplan describe each waste stream that your activities will produce (e.g. construction and demolition debris, general trash, used oil, scrap metal, process water, special waste, etc.)	Y, All to be discarded in concrete washouts
	Does you workplan describe where you will store and dispose of your waste streams?	Y
	Are you aware that all your waste and recycling containers (e.g. roll-offs, trash cans, etc.) must be labeled and covered?	Y
	All unused product or chemicals brought on site by a subcontractor is the responsibility of, and must be removed from site by, the subcontractor when work is complete.	NA
	Have all your final waste disposal vendors been approved by Klewit Environmental Department?	NA
Waste Management - Universal	Will your activities produce any universal waste (e.g. bulbs, ballasts, batteries, thermostats, electronic or digital displays, etc.)	N
	Are you aware that universal waste is a subset of hazardous waste and is highly regulated and strictly managed? Does your workplan describe how you will collect, label, store, and dispose of universal waste properly?	Y
	Have all your final waste disposal vendors been approved by Klewit Environmental Department?	Y
Waste Management - Hazardous	Will your activities produce any hazardous waste (e.g. aerosol cans, pasiode cartridges, paints, solvents, epoxies, etc.)?	N
	Are you aware that hazardous waste is highly regulated and strictly managed? Does your workplan describe how you will collect, label, store, and dispose of hazardous waste properly?	NA
	Have all your final waste disposal vendors been approved by Klewit Environmental Department?	NA
Wildlife	Will your activities disturb any wildlife habitat (particularly birds or bird nests)?	N
	Are you aware of the migratory bird treaty act regulations and potential restrictions with respect to bird nests?	Y

Appendix C – Kiewit Post-Incident Report (06/2022)

INCIDENT ALERT

INCIDENT TYPE: OTHER RECORDABLE **POTENTIAL SEVERITY:** LEVEL 3

Date and Time: 06/03/2022 – 11:30PM **District Name: Eastern**

Internal/External: External **Project Name: 104893**/WMATA Ph 4

Description (What happened?)
A subcontractor employee was standing on the granite edge of the Metrorail platform, which was saw cut for removal. The granite shifted causing the employee to fall approximately 3.5' to the track bed. The 8'-4" piece of granite fell along with the employee and rolled off the shoring which came to rest on his ankle/foot.

Causal Factors (Why did the incident happen?)

1. **Following Procedures (Planning)**
   - Improper decision making or lack of judgment

Details: The injured subcontractor did not adhere to the warnings discussed at the pre-shift meeting and he was warned multiple times during the shift that no one was allowed to stand on the edge of platform.

2. **Use of Protective Methods & Systems**
   - Failure to Identify Change

Details: The hazard of walking on the granite edge was identified in the pre-shift meeting. The crew did not identify this hazard in the Operational Start Card.

3. **Use of Protective Methods & Systems**
   - Defective guards or protective devices

Details: Although the hazard of the granite edge was verbally communicated, there were no visible marker to remind the injured employee of risk.

Corrective Measures (How can the incident be prevented in the future?)

- Use delineated rope, candle sticks, and signage as a visible marker.
- Don't take short cut or take unnecessary risk.

Appendix D – Operations Start Card (Job Hazard Analysis) (No Date)

1 OPERATIONS TASK PLAN

Add operation(s) tasks here. For each task, fill out a corresponding Safeguard Verification CHECKLIST® on the back side.

TASK 1
- Task: SET UP Equipment
- Work location: Platform
- What could kill us? Slips, Falls
- What could hurt us? Heavy lifting, Electric shock
- How will we prevent the hurt? Use proper lifting technique, GFCI
- SAFEGUARD VERIFICATION CHECKLIST® COMPLETED? Y☑ N☐ N/A☐

TASK 2
- Task: Move Debris
- Work location: Platform
- What could kill us? Struck by equipment or debris
- What could hurt us? Silica dust, struck by debris, or Equipment
- How will we prevent the hurt? Spray water, Use proper PPE, be aware of surrounding.
- SAFEGUARD VERIFICATION CHECKLIST® COMPLETED? Y☑ N☐ N/A☐

TASK 3
- Task: Demo Platform
- Work location: Platform
- What could kill us? Struck by Equipment or debris, Falls, slip
- What could hurt us? Struck by debris or equipment, Silica, Noise
- How will we prevent the hurt? Proper PPE, Spraying water, be aware.
- SAFEGUARD VERIFICATION CHECKLIST® COMPLETED? Y☑ N☐ N/A☐

TASK 4
- Task: X
- Work location:
- What could kill us?
- What could hurt us? Pinched by Equipment
- How will we prevent the hurt? Watch hand & body position.
- SAFEGUARD VERIFICATION CHECKLIST® COMPLETED? Y☐ N☐ N/A☐

2 OTHER POTENTIAL FATAL RISKS AND SAFEGUARDS

What other risk(s) could cause a fatality? Fall of Track

List any additional safeguards: Watch step

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3 TOOLS AND EQUIPMENT

What tools and equipment are we using for this operation? 2X brokk, 2X Skidsteer

Do we have the proper training? What will you do to prevent injuries from these tools / equipment? Yes.

4 ADDITIONAL HAZARD PLANNING / CONTROL(S)

What is the access for this operation? Barracades & Ramps

What specialty Personal Protective Equipment (PPE) or precautions are needed for this operation?

TO PREVENT EYE INJURIES:
- RISK: Flying debris
- PPE / PREVENTION: Face shield, Glasses
- RISK:
- PPE / PREVENTION:

TO PREVENT HAND INJURIES:
- RISK: Cut by ceramic, Rebars
- PPE / PREVENTION: Gloves
- RISK:
- PPE / PREVENTION:

OTHER SPECIAL PPE:
- RISK: Noise > 85 DBS
- PPE / PREVENTION: Ear Plugs.
- RISK:
- PPE / PREVENTION:

What muscle strain injuries are possible for this operation? Arms, Back.

Are any permits required for this operation i.e. fall permit, confined space, utility etc? N/A

CREW CHECK

What motivates you to work safe? Money, Family

Are you and everyone around you physically and mentally prepared to do today's work? Y☑ N☐

Did everyone actively engage in stretch and flex? Y☑ N☐

Excellence in Safety & Best Cost (to be completed in the middle/end of shift): What can we do to improve our safety and make our operation more efficient?

***I am committed,** if there is a change in the operation, we will stop and re-evaluate our plan before moving forward.* INITIAL IF YES ☐

OPERATIONS START CARD
JOB HAZARD ANALYSIS

LSA LIFE-SAVING ACTIONS

EXECUTION EXPECTATIONS

- This Start Card is to be filled out daily for each operation before the operation begins. This card may be used by the individual, small team or crew.
- This Start Card must be filled out by the individuals performing the operation.
- Unless specified by our client, it is recommended to retain Start Cards for at least one (1) week.
- The project is to determine front-line supervision (FLS) signature requirements, but it is recommended that an FLS sign-off at some point during the operation. If "N/A" is checked for any of the applicable safeguards, an FLS must sign and approve. If "NO" is checked, Section 2 must be completed and an FLS must sign and approve.
- If you encounter change(s), or move work areas, you may modify this Start Card or fill out a new card.
- Section 1 - Complete the Operations Task Plan and identify what can kill you or hurt us and verify the safeguards in the checklist.
- Section 2 - Identify any other potential fatal risks and safeguards.
- Section 3 - Identify tools and equipment to be used in the operation.
- Section 4 - Complete additional hazard planning / control(s).

OWNERSHIP

OPERATION: Demo

SUPERINTENDENT:

FOREMAN: [redacted]

ON-SITE EMERGENCY CONTACT: [redacted]

SIGNATURES: [redacted]

DATE

DATE

DATE

DATE

DATE

DATE

DATE

IMPORTANT ANY HAZARDS NOT VERIFIED / CHECKED NO, COMPLETE THE ADDITIONAL SAFEGUARD RISKS IN SECTION 2

CHECKLIST
LSA RISKS AND SAFEGUARD VERIFICATION

A checklist used to ensure the appropriate LSA safeguards are in place before work begins.

VERSION 10042I

HUMAN EQUIPMENT INTERACTION — VERIFIED

Any task / unplanned event where person(s) are present or a high likelihood person(s) could be present, or could be struck by a piece of equipment / motor vehicle.

YES / NO / N/A
- ☑ Have separate access routes been established for equipment and personnel?
- ☑ Are all safety devices installed and working i.e. seatbelts, backup alarms, cameras etc.?
- ☑ Are spotters required for the operation, and if so, have they been properly trained and equipped?
- ☑ Are workers properly protected by staying out of blind spots or crush points?
- ☑ Has the operator been trained and designated on that specific piece of equipment?
- ☑ Are ground personnel getting positive visual confirmation before approaching equipment operations i.e. bucket down, hands in air?

FLS INITIAL: ____ VERIFIED BY:

TRACK — VERIFIED

Any task / unplanned event while working on or around rail road tracks.

YES / NO / N/A
- ☐ Is the crew physically protected from energized track, underground and overhead utilities, live 3rd Rail, and overhead catenary systems?
- ☐ While working on the track, are appropriate measures in place to warn or protect workers from trains or equipment i.e. flagman, derailers etc?
- ☐ Has all stationary track equipment been secured from unintentional release by implementing two (2) methods i.e. parking brake / hand brake, ground implements, wheel locks / pins, rail checks, chains etc.?
- ☐ Is the work zone set up and are all protections in place per the project and / or agency's track allocation procedures prior to entering the right of way (ROW)?
- ☐ Is there a plan in place to ensure all tools, equipment and materials are clear and are not fouling the track at the end of each operation?
- ☐ Are operators and employees working on the track properly trained and designated?
- ☐ If used, have we ensured the derailers are not installed backwards, or installed where equipment would be derailed into other objects?

FLS INITIAL: ____ VERIFIED BY:

CONFINED SPACES — VERIFIED

Any task / unplanned event involving a confined space.

YES / NO / N/A
- ☐ Has a Competent Person reviewed and signed off on the assessment form and / or the permit?
- ☐ Is there safe access in and out of the space?
- ☐ Has the air been tested and any potential changes in the atmosphere been accounted for?
- ☐ Is a rescue plan in place and understood by the crew performing the work?
- ☐ Has the rescue team been assigned or notified and have rescue devices been set up?
- ☐ Is there an effective communication plan between entrant and / or attendants?
- ☐ Is the confined space adequately identified and protected from unauthorized entry?
- ☐ Has a Competent Person communicated and verified that employees know their responsibilities?
- ☐ Have the entry supervisor, entrants and attendants been trained?

FLS INITIAL: ____ VERIFIED BY:

LIFTING AND RIGGING — VERIFIED

Any task / unplanned event with rigging or material failure while rigging or during movement of material.

YES / NO / N/A

MATERIAL HANDLING
- ☑ Is the load positioned or secured so that it can be rigged or lifted safely?
- ☑ Is there a designated signal person assigned to the operation?
- ☑ Has a method of communication been established i.e. radio, signals, verbal?
- ☑ Is the load secured with the proper number of tie downs for transport?
- ☑ Is the Loading and Unloading standard operating procedure (SOP) being followed?

RIGGING
- ☑ Is rigging rated for the load that is being hoisted?
- ☑ Has the rigging been inspected and in good working condition?
- ☑ Has the center of gravity been identified for the load?
- ☑ Is the rigging protected from abrasive or sharp edges?
- ☑ Are proper pick points identified and utilized?
- ☑ Are we using a qualified rigger?
- ☑ Are we following the lift plan, including base mounted winch, chain / lever hoist, crane?

FLS INITIAL: ____ VERIFIED BY:

TRENCHING & EXCAVATION — VERIFIED

Any unplanned event which occurs while employees are working in and around a trench or excavation.

YES / NO / N/A
- ☐ Have overhead, underground and penetration utilities been visibly marked?
- ☐ Has a permit / log been completed specific to the work area?
- ☐ Has the soil been classified by a Competent Person?
- ☐ For <20' (6m) at base, has a trench log been verified by a Competent Person?
- ☐ Are materials, equipment and spoils ≥ 2' (0.6m) from the edge? (Canada, ≥ 1 meter)
- ☐ Are slopes, shoring, and trench boxes installed properly?
- ☐ Are workers protecting themselves from crush points?
- ☐ Is there access within 25' (7.6m) for every employee in the trench i.e. ladders, stairs, ramps etc.?
- ☐ Is the slope face clear of loose material?

FLS INITIAL: ____ VERIFIED BY:

CRANES — VERIFIED

Any task / unplanned event involving cranes.

YES / NO / N/A
- ☑ Is the crane operator authorized and designated for the specific crane being used?
- ☑ Was the Crane Move Checklist completed prior to move?
- ☑ Is the crane set up properly: swing radius protected, firm level ground, correct cribbing and within manufacturers tolerances?
- ☑ Is the detailed lift plan, On-the-Spot lift plan or Critical lift plan complete and accurate for the current lift?
- ☑ Are power lines identified, marked, insulated or grounded out?
- ☑ Is a Designated Spotter equipped with visual or auditory aids if there is potential to breach the prohibited zone of overhead power line(s)?
- ☑ During assembly and disassembly (AD) is the A/D Director present and have they verified the operator and crew are following the plan?
- ☑ Is a qualified rigger and designated signal person part of the operation?
- ☑ Is the crane operator following the manufacturer's recommendation or policy for weather restrictions?
- ☑ If any part of the crane(s) is within the working range of another crane or obstruction, is there a Collision Avoidance Plan in place?
- ☑ Has the correct load chart been used to determine the crane's capacity?

FLS INITIAL: ____ VERIFIED BY:

MAINTENANCE OF TRAFFIC — VERIFIED

Any task / unplanned event involving workers exposed to traffic and the traveling public.

YES / NO / N/A
- ☑ Is there a traffic control plan in place?
- ☑ Is there a plan in place to protect our workers and third parties from live traffic?
- ☑ Are we utilizing our equipment and vehicles to help protect our employees?
- ☑ Are the traffic control devices regularly inspected and repaired?
- ☑ Are the workers wearing all required personal protective equipment (PPE)?
- ☑ Is there safe access for all parties?
- ☑ Are employees trained to properly enter and exit the closure?

FLS INITIAL: ____ VERIFIED BY:

UTILITIES: OVERHEAD, UNDERGROUND & PENETRATIONS — VERIFIED

Any task / unplanned event involving a utility strike or close call whether the utility location is known or unknown.

YES / NO / N/A
- ☐ Are the required permits (Overhead, Ground Disturbance, Excavation, Structures Penetration) in place, completed, and reviewed with the crew prior to the start of the operation?
- ☐ Do the front-line supervision (FLS) and operator understand clearance requirements for utilities and have they walked the area prior to beginning work?
- ☐ Are utilities marked and / or flagged and, where possible, de-energized or shielded?
- ☐ Are spotters required for the operation and, if so, have they been properly trained and equipped?
- ☐ Does the crew understand the emergency actions required if a utility strike occurs?

FLS INITIAL: ____ VERIFIED BY:

ENERGY ISOLATION / LOTO / ISOLATION & STORED ENERGY — VERIFIED

Any task / unplanned event with a release of kinetic, mechanical, thermal, hydraulic, gravitational, electrical, or other forms of stored energy with workers exposed or possibly exposed.

YES / NO / N/A

LOTO / ISOLATION
- ☐ Has hazardous or residual stored energy been identified, released and / or restrained?
- ☐ Is the system / equipment being worked on, isolated from all energy sources including back feeds?
- ☐ Are employees protected from energized systems?
- ☐ Has the system / equipment been zero energy state tested prior to work?
- ☐ Is the correct personal protective equipment (PPE) being worn for the operation?
- ☐ Have the affected people working been trained?

STORED ENERGY
- ☐ Has all residual stored energy been identified, released and / or restrained?
- ☐ Have all stored energy hazards been identified and controlled?
- ☐ Has the crew identified and restricted access to areas in a potential line of fire?

FLS INITIAL: ____ VERIFIED BY:

TEMPORARY STRUCTURES (TSCD) — VERIFIED

Any task / unplanned event involving the partial fall or possible failure of a TSCD with worker or public exposure or possible exposure.

YES / NO / N/A
- ☐ Are the current drawings in the field with the crew building the work?
- ☐ Has the TSCD been built exactly as it is shown in the drawings?
- ☐ If we have changed a TSCD item in any way, has the Designer approved the changes in writing?
- ☐ Are the critical components plumb, level, fully engaged, and / or secured from loosening over time?
- ☐ Were all TSCD inspections completed and satisfactory?

FLS INITIAL: ____ VERIFIED BY:

WORKING AT HEIGHTS: FALL PROTECTION / DROPPED OBJECTS — VERIFIED

Any task / unplanned event resulting in a fall or dropped object from any height above the walking / working surface.

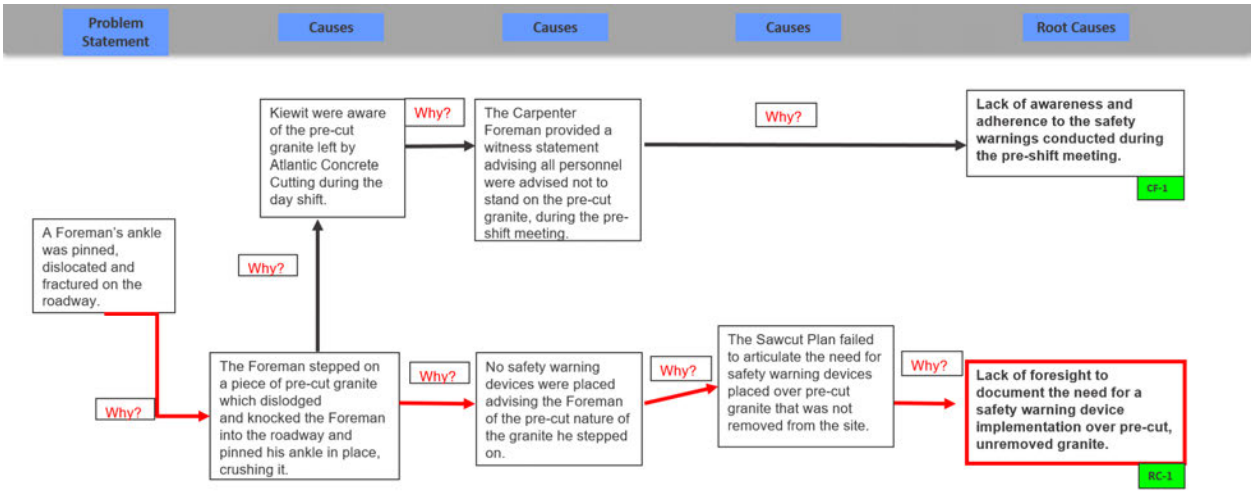
YES / NO / N/A

DROPPED OBJECTS
- ☐ Are tools and materials properly secured using approved tethers and materials?
- ☐ Have tool tethers and dropped object equipment been inspected?
- ☐ Is the area below the dropped object hazard Controlled Access Zone (CAZ) properly barricaded / roped off with signage?
- ☐ Are workers located outside the CAZ barricade not exposed while work is occurring overhead?
- ☐ Is protection in place on all handrails, floor openings and holes?
- ☐ Are materials stored in a manner to prevent dropped objects?

FALL PROTECTION
- ☐ Is the company standard fall protection permit in place and being followed?
- ☐ Are workers utilizing proper anchorage points and are they clearly identified in their Fall Protection Permit?
- ☐ Do workers have adequate fall clearance and is it clearly identified in the Fall Protection Permit?
- ☐ Is the company-approved gear being properly used, in good working order and inspected?
- ☐ Have employees using fall arrest gear received authorized user training?

FLS INITIAL: ____ VERIFIED BY:

Appendix E – Root Cause Analysis



Root Cause Analysis