

Southeast Coast Network

National Park Service
Inventory and Monitoring Division



Standard Operating Procedure 2.3.07

Monitoring Coastal Wetland Elevation Data Management and Database Technical Documentation—Version 2.1

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Summary

This standard operating procedure (SOP) provides instructions for the development, maintenance, and distribution of monitoring data associated with the protocol for wetland elevation monitoring in the Southeast Coast Network. All wetland elevation monitoring data are stored in the multi-network surface elevation table data management system managed and maintained by the National Park Service (NPS). The data management system is utilized by five NPS Inventory and Monitoring Networks across the Atlantic seaboard: the Northeast Temperate Network (NETN), the Northeast Coastal and Barrier Network (NCBN), the National Capital Region Network (NCRN), the Southeast Coast Network (SECN), and the South Florida/Caribbean Network (SFCN). The data system encompasses data from twenty national park units. It is the responsibility of the network data managers and wetland elevation protocol leads and staff to be thoroughly familiar with the standards and procedures within the protocol and companion SOPs, and ensure this SOP is updated to reflect any substantial changes made to that plan. All proposed changes to this SOP must be routed through the appropriate data managers for approval.

Revision Log

Revision Date	Author	Changes Made	Reason for Change	New Version #
March 2022	Wright, Kozlowski, Patterson	Updated with new methods and reference material	New database. New user interface.	2.0
August 2022	Wright, Kozlowski	Updated views, minor edits	SQL views finalized	2.1

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Overview

Surface Elevation Table (SET) monitoring data are stored and processed using a multi-network, multi-region data management system (Table 1). This system consists of two primary applications: a data entry user-interface and a back-end data storage and reporting system. The data entry application is designed for the manual entry of field data and application of appropriate QA/QC processes. It consists of a web-based user-interface located on the NPS Integrated Resource Management Applications site (IRMA). The back-end storage application consists of a SQL Server database and manages all data storage and reporting required for both internal and external use. Both the front and back-end applications can be accessed by multiple users simultaneously.

The purpose of this SOP is to provide an overview of the functionality of the back-end storage and reporting components of the database. Technical documentation and instruction for use of the web-based data entry interface is provided in SOP 2.3.06 *Coastal Wetland Elevation Database User Manual* (Wright and Kozlowski 2022).

Expected Audience

This SOP is written specifically for the data managers and data interns, protocol leads, project crew members, and cooperating partners who wish to access or maintain existing data schemas or build new data management solutions to support implementation of this protocol. In all cases, it is intended that this SOP will reduce the overall time needed to accomplish required tasks. To accomplish this goal:

- Data managers need to read the entire SOP and be familiar with all aspects of the document. Data managers looking for ways to improve or add to the system must first understand the system in use.
- Protocol leads, as well as anyone under their supervision, need to read and be familiar with the requirements of the Data Stewardship and Data Workflow section of this SOP. The SQL backend database plays a central role assisting protocol leads by advancing data through defined data processing levels (raw to certified), providing transactional data for the QAQC Dashboard, and generating the datasets used to publish the annual data package.

Data Stewardship and Data Workflow

Two data sets are being collected as a part of this surface elevation table (SET) monitoring effort: SET pin data and marker horizon data. Storage of QA/QC information for these data sets is included in this data structure (e.g., data validation and flagging). An overview of the data management processes associated with the monitoring is shown in Figure 1.

Table 1. List of parks where surface elevation table (SET) monitoring is conducted.

Network Code	Park Name	Park Code
NCBN	Assateague Island National Seashore	ASIS
NCBN	Cape Cod National Seashore	CACO
NCBN	Colonial National Historical Park	COLO
NCBN	Fire Island National Seashore	FIIS
NCBN	Gateway National Recreation Area	GATE
NCRN	George Washington Memorial Parkway	GWMP
NCRN	National Capital Parks-East	NACE
NETN	Acadia National Park	ACAD
NETN	Boston Harbor Islands National Recreation Area	BOHA
SECN	Canaveral National Seashore	CANA
SECN	Cape Hatteras National Seashore	CAHA
SECN	Cape Lookout National Seashore	CALO
SECN	Cumberland Island National Seashore	CUIS
SECN	Fort Frederica National Monument	FOFR
SECN	Fort Matanzas National Monument	FOMA
SECN	Fort Pulaski National Monument	FOPU
SECN	Timucuan Ecological and Historic Preserve	TIMU
SFCN	Biscayne National Park	BISC
SFCN	Salt River Bay National Historical Park and Ecological Preserve	SARI
SFCN	Virgin Islands National Park	VIIS

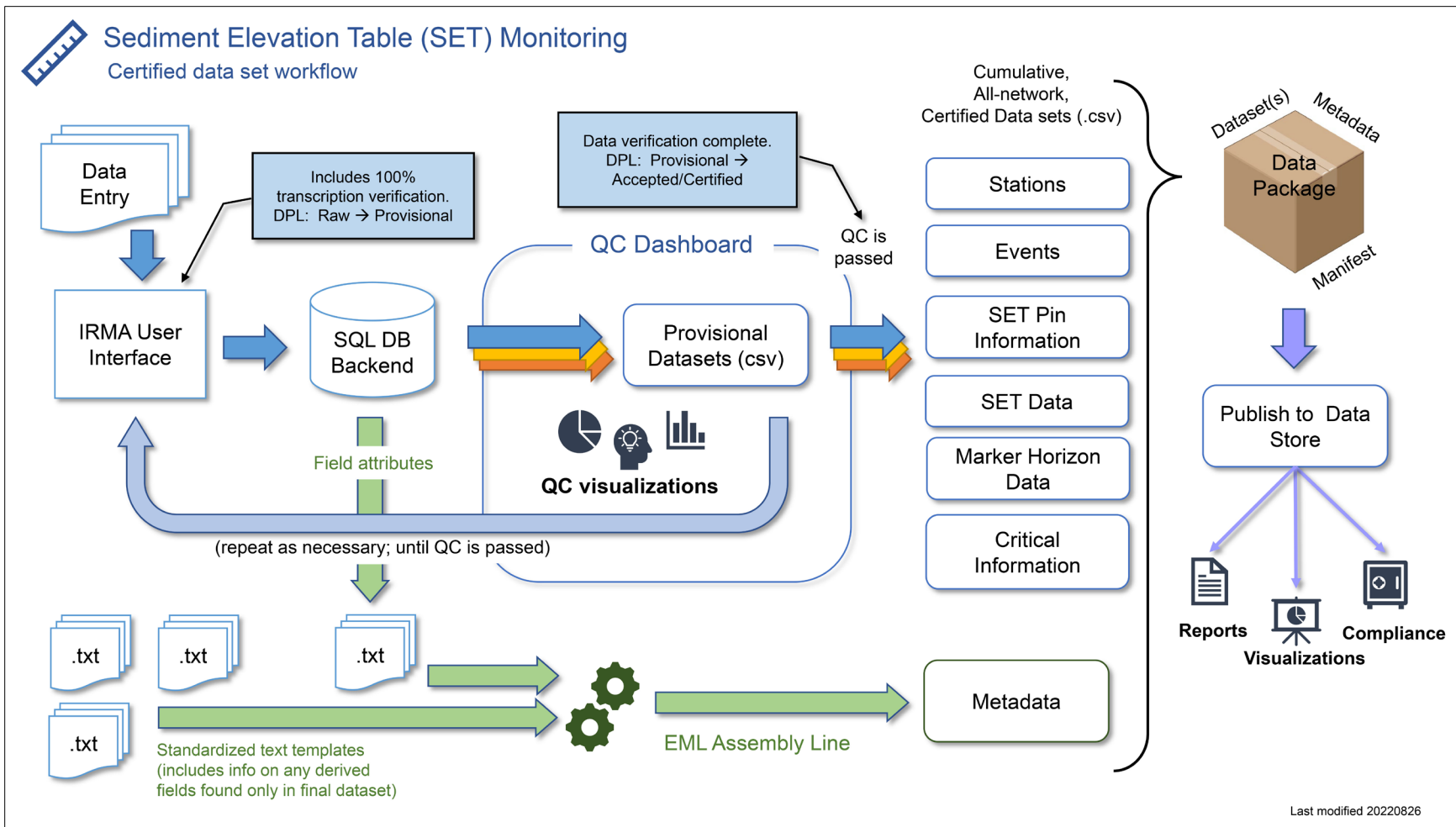


Figure 1. Surface elevation table monitoring workflow diagram.

Change in surface elevation (pins) and accretion (marker horizons) are measured at regular intervals in 20 national park units (Table 1). Upon return from the field, the original paper data sheets (data processing level = raw) are entered into the data management system using the web-based user interface by the protocol lead, technician, or other staff member. Protocol staff then conduct a check of the field data forms against the digital entries to ensure that transcribed data are complete and accurate (data processing level = provisional). Provisional datasets (in the format of SQL views) undergo a second round of review using a QAQC Dashboard to identify contextual and logic-based data issues. Errors or deviations from standard practices that are discovered at this stage are corrected, flagged, and/or documented using the web-based user interface. Provisional data are iteratively corrected and reviewed until the protocol lead confirms the data meet the quality assurance standards defined in the protocol (data processing level = accepted). Details about data quality assurance/quality control and data processing levels are found in SOP 2.3.05 (Data Processing and Reporting, in draft).

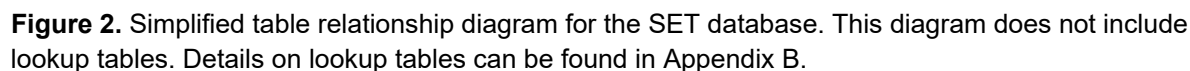
Roles and Responsibilities

Data stewardship is the responsibility of all network staff, from the field crew who collect, verify, and enter data; to the protocol lead and technician who validate, analyze, and summarize data; to the network data manager, who ensures that master data sets are of high quality and proper data management standards and practices are in place and followed. General roles and responsibilities of key personnel are described in Table 2. In small networks, individual staff may perform one or more of these roles.

Table 2. Wetland Elevation Monitoring protocol roles and responsibilities for core personnel.

Roles	Responsibilities
Protocol lead	Operational lead for SET monitoring. Protocol development and publication lead, reviews and analyzes data, develops reports for publication, establishes partnerships and creates agreements as needed, reviews data and metadata prior to publication. Ensures data quality.
Technician	Manages SET operation and maintenance. Manages equipment, collects field data, provides training to field crew, ensures protocols are followed, reviews and analyzes data, assists in publication development, reviews data and metadata prior to publication.
Partners	Field data collection, calibrates equipment, manages equipment.
Data manager	Technical point of contact for all tasks concerning network and NPS database and information management standards, including (but not limited to): security, data quality, data documentation, database structure, reporting, and linkages to other NPS information management systems. Technical point of contact for all tasks concerning database, application development, and database administration and publication. Ensures data quality.

Data models define the logical structure of a database and determine how data can be stored, organized, and edited. The data model for SET monitoring was designed to manage data collected in the field, relevant QA/QC information, and all associated metadata. Proper linking of these three data types is critical for effective long-term monitoring and analysis of surface elevation and provides researchers and policy makers with information necessary to make decisions regarding the use and conservation of the park natural resources. Detailed information about the data model can be found by referring to the Data Dictionary for Core Tables (Appendix A), Data Dictionary for Lookup Tables (Appendix B), and Database Constraints (Appendix C).



Database Reporting

Analytical Data Views

To provide SET data in a consistent format to all reporting platforms, four views were created in the SQL database. These views are used to pass formatted data to all downstream QA/QC applications as well as provide the data used to publish annual, public, machine-readable data packages (Figure 3).

The analytical data views are:

1. `vw_dbx_marker_horizon_data`—Contains information about the parks, sites, marker horizon plots, visit dates, core types and notes, and data processing levels for marker horizon data.
2. `vw_dbx_SET_pin_information`—Contains information about the pin collections.
3. `vw_dbx_SET_data_FINAL`—Contains pin reading data, data processing levels, pin length and notes, and validation status. This view is built on several sub views.
4. `vw_dbx_stations`—Contains information about the sites and stations in each park, along with locations, active status, and protected status.
5. `vw_dbx_critical_information`—Contains information about event level deviations from protocol (category and description) likely to affect data quality or consistency.
6. `vw_dbx_events`—Contains information about individual events, including network and park information, site and station information, date and time information, and if data was collected.

Details on view fields and aliases are found in Appendix D.

Metadata Views

In addition to the analytical data views mentioned in the previous section, data about the architecture of the database itself is summarized in two metadata views. Data returned by these views are used to assist with database documentation (e.g., used to generate Appendices A–D) and metadata creation for the annual data package. These views centralize key descriptive information about the database and are easily refreshed as the database is updated. The metadata views are:

1. `vw_Metadata_Table`—A list of all database tables, their fields, and attributes (table description, field descriptions, field metrics).
2. `vw_Metadata_View`—A list of the database fields selected for the transactional data views (table description, field descriptions, field metrics).

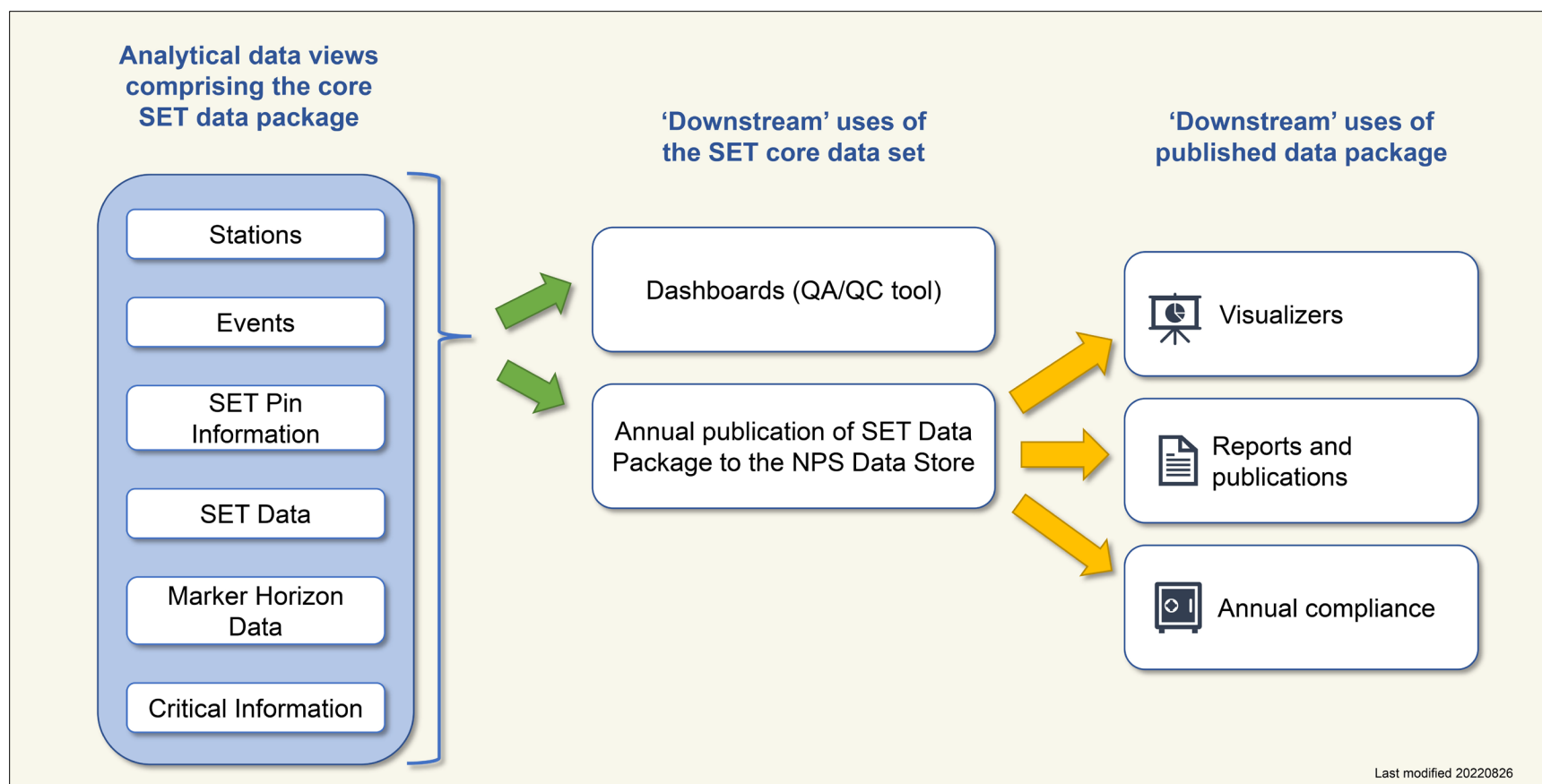


Figure 3. Graphic illustrating expected data reporting workflows in the SET database.

Database Administration and Maintenance

Database Access and Security

The SET database is maintained on access-control servers owned and operated by the Department of the Interior. Access to these servers and the database instances themselves (e.g., read-only or read-write privileges) is tightly controlled. Server and instance information and web addresses for SET SQL servers, report servers, and DevOps sites are maintained and published as a [restricted-access reference document](#) (Wright et al. 2022) on the National Park Service's Data Store. This reference contains information on how credentialed users can obtain access and connect to the SET database. However, it should be stressed that database access will only be granted to staff actively engaged in maintaining or updating the SET data model or QA/QA Dashboard application. Those wishing to simply obtain access to SET data should be directed to the fully documented, [public-facing data package published annually to Data Store](#) (NPS 2022).

Changes to the Database

A fully relational, SQL database is used to coordinate all data storage and data reporting needs for this protocol. This database exists as two instances: a development instance and a production instance. The development instance is used to test modifications and updates. The production instance is the authoritative version of the database and is the source of data for downstream applications such as the QA/QC Dashboard as well as providing the data for the annually published, public-facing, machine-readable data package. Changes to the SET Data Model begin as requests, undergo review and refinement by all participating networks' protocol leads and data managers during operational reviews, are ticketed and tracked in Azure DevOps, tested in the development instance, and upon successful validation 'pushed up' to production.

Changes to the Data

Datasets are rarely static and often change through additions, corrections, and improvements made during the verification process required by the protocol. The decision to change data should not be made lightly and must adhere to the following three principles:

1. Only make changes or updates if it improves data integrity.
2. Document any changes made to the dataset.
3. Be prepared to recover from mistakes made during editing.

Documenting data revisions is important, and in fact required, when a record's data processing level (DPL) is either 'provisional' or 'certified' (NPS 2016). Whenever possible, the data-entry application should be used to make changes for the following reasons:

1. Operational rules are enforced that restrict changes to specific user role and data processing level combinations.

2. The application programming interface (API) has procedures that record and send change-tracking data to an 'Audit' table in the backend (modified date, modified by, pre- and post-edit data descriptions).

When more substantial 'batch' edits are required the SET development team will be consulted. SQL code is scripted and saved, tested on the development server, and thoroughly documented in Azure DevOps. Data packages, once published, cannot be changed. A new version will need to be generated and published. Documenting the differences between versioned datasets can be summarized using a simple comparison of the two datasets.

Literature Cited

- National Park Service. 2016. Certification guidelines for Inventory and Monitoring data products. National Park Service, Inventory and Monitoring Division. Fort Collins, Colorado. Available at <https://irma.nps.gov/DataStore/Reference/Profile/2227397> (last accessed April 2022).
- National Park Service (NPS). 2022. Surface Elevation Table (SET) Data Package. Available at <https://irma.nps.gov/DataStore/Reference/Profile/2293220> (last accessed April 2022).
- Wright, W., and A. Kozlowski. 2022. Coastal wetland elevation database user manual and technical documentation—Version 2.0. Southeast Coast Network Standard Operating Procedure NPS/SECN/SOP—2.3.06. Southeast Coast Network, Athens, Georgia. Available at: <https://irma.nps.gov/DataStore/Reference/Profile/2293214> (last accessed April 2022).
- Wright, W., A. Kozlowski, and J. Patterson. 2022. Set database access documentation. Restricted access. Available at: <https://irma.nps.gov/DataStore/Reference/Profile/2292934> (last accessed April 2022).

Appendix A. Data Dictionary for Core Tables

Table A-1. Description of fields in the dbo.Audit table, which logs changes made to data while using the web-based, data entry/user interface/api.

Field Name	Key	Data Type	Required	Description
ID	PK	bigint	No	Primary Key of table
Modified	–	datetime2	No	Date data was modified
ModifiedBy	–	varchar (64)	No	User who modified the data
ApiProcedure	–	varchar (64)	No	Name of the stored procedure used to process the data
DataBefore	–	xml	Yes	XML view of the data contents before it was modified
DataAfter	–	xml	Yes	XML view of the data contents after it was modified

Table A-2. Description of fields in the dbo.Core table, which is an intermediary many-to-many table to hold foreign key values for related CoreEvent and MarkerHorizon table records.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
CoreEventID	FK References CoreEvent(ID)	int	No	Foreign Key to the CoreEvent table
CoreConditionCodeID	FK References Lkup_CoreConditionCode(ID)	int	No	Foreign Key to the CoreConditionCode lookup table
MarkerHorizonID	FK References MarkerHorizon(ID)	int	No	Foreign Key to the MarkerHorizon table
Notes	–	varchar (1000)	Yes	Freeform field to allow the user to record key details related to the Core record

Table A-3. Description of fields in the dbo.CoreEvent table, which stores marker horizon core event data such as Reader, Recorder, type of core, and validation status for the event.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
EventID	FK References Event(ID)	int	No	Foreign Key to the Event table
Reader_StaffID	FK References Staff(ID)	int	No	Foreign Key to the Staff table representing the Data Reader
Recorder_StaffID	FK References Staff(ID)	int	No	Foreign Key to the Staff table representing the Data Recorder
CoreTypeCodeID	FK References Lkup_CoreTypeCode(ID)	int	No	Foreign Key to the Core Type lookup table
ValidationID	FK References Validation(ID)	int	Yes	Foreign Key to the Validation table
Notes	–	varchar (4000)	Yes	Notes related to the Core Event

Table A-4. Description of fields in the dbo.CoreObservation table, which stores individual marker horizon core depth measurements in millimeters.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
CoreID	FK References Core(ID)	int	No	Foreign Key to the Core table
ObservationNumber	–	int	No	A number value to identify the observation
DepthToBenchmark_mm	–	decimal	Yes	Actual Core Measurement in millimeters

Table A-5. Descriptions of fields in the dbo.Deviations table, which stores event level deviations from protocol (category and description) likely to affect data quality or consistency.

Field Name	Key	Data Type	Required	Description
DeviationID	PK	int	Yes	Primary Key of table
EventID	FK references Event(ID)	int	Yes	Foreign Key to the Event table
Category	FK references Lkup_DeviationCategory	int	Yes	Foreign Key to the category type lookup table
Details	–	varchar(2000)	Yes	Details of the deviation

Table A-6. Descriptions of fields in the dbo.Equipment table, which stores individual SET instrument and their attributes.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
EquipmentTypeID	FK References Lkup_EquipmentType(ID)	int	No	Foreign Key to the Equipment Type lookup table
IsActive	–	bit	No	Flag to indicate if the Equipment record is active for use
Name	–	varchar (50)	No	A code or short identifying name for the equipment
Description	–	varchar (1000)	Yes	Description of the Equipment used during the measurement
NetworkCode	–	varchar (4)	No	The network the equipment belongs to

Table A-7. Descriptions of fields in the dbo.Event table, which stores event level metadata for each site visit; including presence or absence of pin data and overall data processing level for the event.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
EventDateTimeUTC	–	datetime2	No	The date that the Event occurred in UTC (Universal Time Coordinated)
DataProcessingLevelDate	–	datetime2	Yes	A date to indicate when the latest DataProcessingLevel was set
EventDateTimeWithOffset	–	datetimeoffset	No	The date that the Event occurred in UTC (Universal Time Coordinated) plus the UTC offset time
StationID	FK References Station(ID)	int	No	Foreign Key to the Station table
DataProcessingLevelID	FK References Lkup_DataProcessingLevel(ID)	int	No	Foreign Key to the DataProcessingLevel lookup table
DataProcessingLevelUserID	FK References Users(ID)	int	Yes	Foreign Key to the User table to indicate who set the DPL value
NoCoreData	–	bit	No	A flag to indicate if Marker Horizon Data exists. when false(0) then no Marker Horizon Data exists, true(1) if it does.
ReplicatePinDataExist	–	bit	No	A flag to indicate if Replicate Data Exists, True(1) or False(0)
PinDataExist	–	bit	No	A flag to indicate if Replicate Data Exists, True(1) or False(0)
InundationLevel_cm	–	decimal	Yes	A record of inundation level measured in centimeters
EventNotes	–	varchar (4000)	Yes	A user freeform text field to record key notes about the specific event
DataProcessingLevelNote	–	varchar (4000)	Yes	User notes related the Data Processing Level
NoCoreDataNotes	–	varchar (1000)	Yes	A user freeform text field to record notes about Marker Horizon data at the Event level

Table A-8. Descriptions of fields in the dbo.EventImage table, which is an intermediary many-to-many table to hold foreign key values for related Event and Image table records.

Field Name	Key	Data Type	Required	Description
EventID	FK References Event(ID)	int	No	Foreign Key to the Event table
ImageID	FK References Image(ID)	int	No	Foreign Key to the Image table

Table A-9. Description of fields in the dbo.Image table, which stores image path and metadata information.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
ImageTime	–	datetime2	Yes	Date and time the image was recorded
CardinalDirectionID	FK References Lkup_CardinalDirection(ID)	int	Yes	Foreign Key to the CardinalDirectionID lookup table
ImageTypeID	FK References Lkup_ImageType(ID)	int	No	Foreign Key to the ImageType lookup table
PhotographerStaffID	FK References Staff(ID)	int	Yes	Foreign Key to the Staff lookup table indicating who took the photo
ImageSize	–	int	Yes	Size of image file in MB
FullSizeImage	–	varbinary	Yes	Full image saved to the database
Thumbnail	–	varbinary	Yes	Smaller lower resolution version of the image
Title	–	varchar (100)	Yes	Short Description of the Image
Description	–	varchar (4000)	Yes	Description of the Image in details
FileName	–	varchar (400)	Yes	Name of the actual photo
ContentType	–	varchar (100)	Yes	Description off the image content, if image/jpeg or application/pdf

Table A-10. Descriptions of fields in the dbo.MarkerHorizon table, which stores Marker Horizon name and established/retired dates.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
DateEstablished	–	datetime2	No	Date that the Marker Horizon was created
DateRetired	–	datetime2	Yes	Date that the Marker Horizon was retired and no longer available for use
StationID	FK References Station(ID)	int	No	Foreign Key to the Station table
MarkerHorizonMaterialID	FK References Lkup_MarkerHorizonMaterial(ID)	int	No	Foreign Key to the Marker Horizon Material lookup table
MarkerHorizonLabel	–	varchar (30)	No	Up to five- character unique description of the Marker Horizon within the station
Notes	–	varchar (1000)	Yes	Freeform text field to capture details about the Marker Horizon

Table A-11. Descriptions of fields in the dbo.Pin table, which stores data related to individual SET pins (e.g., position, length, presence of foot).

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
PinMaterialCodeID	FK References Lkup_PinMaterialCode(ID)	int	No	Foreign Key to the Pin Material lookup table
IsFootPresent	–	bit	No	Flag indicating if foot present
PinPosition	–	tinyint	No	A numeric representation of which Pin is being measured, typically a value of 1-9
IsActive	–	bit	No	Flag to indicate if the Pin record is active for use
Length_mm	–	decimal	No	Measured length of a Pin in millimeters
Diameter_in	–	decimal	No	Diameter measured of the pin in inches (Jim L. - Should be Pin Diameter?)

Field Name	Key	Data Type	Required	Description
FootDiameter_in	–	decimal	Yes	Diameter measured of the foot of the pin in inches, if applicable
Label	–	varchar (200)	No	Common name for the Pin
NetworkCode	–	varchar (4)	No	A network code indicating which network a pin belongs to

Table A-12. Descriptions of fields in the dbo.PinCollection table, which stores data related to unique collections of pins (e.g., label, date created/retired, network).

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	ID
DateCreated	–	datetime2	No	DateCreated
DateRetired	–	datetime2	Yes	DateRetired
IsRetired	–	bit	No	IsRetired
Label	–	varchar (200)	Yes	Label
NetworkCode	–	varchar (4)	No	NetworkCode

Table A-13. Description of fields in the dbo.PinCollectionPin table, which is an intermediary many-to-many table to hold foreign key values for related PinCollection and Pin table records.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
PinID	FK References Pin(ID)	int	No	Foreign Key to the Pin table
PinCollectionID	FK References PinCollection(ID)	int	No	Foreign Key to the PinCollection table

Table A-14. Description of fields in the dbo.PinFlagCollection table, which stores exclude-from-analysis flags for individual SET pin data measurements.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
PinObservationID	FK References PinObservation(ID)	int	No	Foreign Key to the Pion Observation table
ExcludeIntervalAnalysisUserID	FK References Users(ID)	int	Yes	Foreign Key to the User lookup table identifying who updated the record
ExcludeCumulativeAnalysisUserID	FK References Users(ID)	int	Yes	Foreign Key to the User lookup table identifying who updated the record
ExcludeIntervalAnalysisReasonID	FK References Lkup_AnalysisReason(ID)	int	Yes	Foreign Key to the Analysis Reason lookup table
ExcludeCumulativeAnalysisReasonID	FK References Lkup_AnalysisReason(ID)	int	Yes	Foreign Key to the Analysis Reason lookup table
ExcludeIntervalAnalysisDate	–	datetime2	Yes	Date representing when the Pin Flag Collection details were excluded from Interval Analysis
ExcludeCumulativeAnalysisDate	–	datetime2	Yes	Date representing when the Pin Flag Collection details were excluded from Cumulative Analysis
Notes	–	varchar (4000)	Yes	Freeform text for user to enter key details about the Pin Flag Collection data

Table A-15. Description of fields in the dbo.PinObservation table, which stores individual SET pin height measurements (height in millimeters above SET instrument arm).

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
PinPosition	–	tinyint	No	A numeric representation of which Pin is being measured, typically a value of 1-9
PinHeight_mm	–	smallint	Yes	Height of the Pin from the ground to the pipe, measured in millimeters
SETDirectionID	FK References SETDirection(ID)	int	No	Foreign Key to the SETDirection table
PinPosition	–	tinyint	No	A numeric representation of which Pin is being measured, typically a value of 1-9

Table A-16. Description of fields in the dbo.PinObservationFlags table, which is an intermediary many-to-many table to hold foreign key values for related PinFlagCollection and Lkup_PinFlag table records.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
PinFlagCollectionID	FK References PinFlagCollection(ID)	int	No	Foreign Key to the Pin Flag Collection lookup table
PinFlagID	FK References Lkup_PinFlag(ID)	int	No	Foreign Key to the Pin Flag table

Table A-17. Description of fields in the dbo.PipeDirectionCode table, which stores the direction code and azimuth degrees of the SET instrument arm for a related series of SET pin measurements.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
StationID	FK References Station(ID)	int	No	Foreign Key to the Station table
AzimuthDegrees	–	int	No	Pipe Direction angle in degrees
Code	–	varchar (12)	Yes	Common name for the Pipe Direction unique to the Station
Notes	–	varchar (100)	Yes	Freeform text for user to enter key details about the Pipe Direction Code
ID	PK	int	No	Primary Key of table
StationID	FK References Station(ID)	int	No	Foreign Key to the Station table

Table A-18. Description of fields in the dbo.SETDirection table, which is an intermediary many-to-many table to hold foreign key values for related SETEvent and PipeDirectionCode table records.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
SETEventID	FK References SETEvent(ID)	int	No	Foreign Key to the SETEvent table
PipeDirectionCodeID	FK References PipeDirectionCode(ID)	int	No	Foreign Key to the PipeDirectionCode table
Notes	–	varchar (4000)	Yes	Freeform text field for the user to describe key details about the SET Direction

Table A-19. Description of fields in the dbo.SETEvent table, which stores additional event related data for SET measurements about the reader, recorder, equipment and pin collection relationships.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
EventID	FK References Event(ID)	int	No	Foreign Key to the Event table
SETReader_StaffID	FK References Staff(ID)	int	No	Foreign Key to the Staff lookup table to record the Staff Reader person
SETRecorder_StaffID	FK References Staff(ID)	int	No	Foreign Key to the Staff lookup table to record the Staff Recorder person
PinCollectionID	FK References PinCollection(ID)	int	Yes	Foreign Key to the Pincollection table
ObservationTypeID	FK References Lkup_ObservationType(ID)	int	No	Foreign Key to the ObservationType lookup table
EquipmentID	FK References Equipment(ID)	int	Yes	Foreign Key to the Equipment table
ReadTypeID	FK References Lkup_ReadType(ID)	int	Yes	Foreign Key to the Read Type lookup table
ValidationID	FK References Validation(ID)	int	Yes	Foreign Key to the Validation lookup table
VegetationNotes	–	varchar (4000)	Yes	User freeform data to indicate unique key vegetation details
Notes	–	varchar (4000)	Yes	User freeform data to indicate unique key details

Table A-20. Description of fields in the dbo.Site table, which stores attributes about SET sites; such as site code, description, and host park.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
Latitude_decimal	–	decimal	Yes	Latitude detail in decimal format
Longitude_decimal	–	decimal	Yes	Longitude detail in decimal format
SiteCode	–	varchar (16)	No	Short Value used to describe the site
Name	–	varchar (200)	No	Full name of the site
Description	–	varchar (1000)	Yes	Full description for the site
ParkOrRefugeCode	–	varchar (16)	No	Code used to describe which park or refuge the site is found within

Table A-21. Description of fields in the dbo.Station table, which store attributes for SET stations (e.g., name, location, installation details, default pin and SET instrument).

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
DateEstablished	–	datetime2	No	The date the Station was made available for usage
DateRetired	–	datetime2	Yes	The date the station was retired from future usage
DataProcessingLevelDate	–	datetime2	Yes	The latest date that the current Data Processing Level was updated
SETReceiverHeight_mm	–	smallint	Yes	Height of the SET Receiver measured in millimeters
SiteID	FK References Site(ID)	int	No	Foreign Key to the Site table
DefaultEquipmentID	FK References Equipment(ID)	int	No	Foreign Key to the Equipment lookup table and is the default Equipment used for SET Events
RodMethodOfInstallID	FK References RodMethodOfInstall(ID)	int	No	Foreign Key to the Rod Method of Install lookup table
ProtectedStatusID	FK References Lkup_ProtectedStatus(ID)	int	No	Foreign Key to the Protected Status lookup table
DataProcessingLevelID	FK References Lkup_DataProcessingLevel(ID)	int	No	Foreign Key to the DataProcessingLevel lookup table
DataProcessingLevelUserID	FK References Users(ID)	int	Yes	Foreign Key to the User lookup table identifying who updated the DPL
DefaultPinCollectionID	FK References PinCollection(ID)	int	Yes	Foreign Key to the PinCollection lookup table and is the default Pin Collection used for SET Events
IsRodDepthRefusal	–	bit	No	True or False value
Latitude	–	decimal	No	Latitude measurement for the Station
Longitude	–	decimal	No	Longitude measurement for the Station

Field Name	Key	Data Type	Required	Description
Elevation_m	–	decimal	Yes	Elevation in meters of the Station location
RodDepth_m	–	decimal	No	Depth of the Rod in meters
Code	–	varchar (10)	No	Short identifier for a Station name
Name	–	varchar (100)	No	Used to uniquely identify the Station
LocationDatum	–	varchar (10)	Yes	Datum used for Location measurement, typically NAD83
ElevationDatum	–	varchar (10)	Yes	Datum used for measurement, typically NAD83
ReceiverManufacturer	–	varchar (100)	Yes	Manufacturer of receiver
RodManufacturer	–	varchar (100)	Yes	Name of the company who manufactured the Rod
Description	–	varchar (4000)	Yes	Freeform text field used to capture key details about the Station
TimeZone	–	varchar (200)	No	Full name of the Time Zone where the station is located
DataProcessingLevelNote	–	varchar (4000)	Yes	Freeform text for describing items related to the data processing level
UploadedSketch	–	binary	Yes	Obsolete

Table A-22. Description of fields in the dbo.StationImage table, which is an intermediary many-to-many table to hold foreign key values for related Station and Image table records.

Field Name	Key	Data Type	Required	Description
StationID	FK References Station(ID)	int	No	Foreign Key to the Station table
ImageID	FK References Image(ID)	int	No	Foreign Key to the Image table

Table A-23. Description of fields in the dbo.UserRole table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
IsAdmin	–	bit	No	Flag to indicate if the user is an Admin with elevated privileges
Code	–	varchar (128)	No	Code used for user logon, usually the NPS login
Issuer	–	varchar (50)	No	Organization for user, either NPS or Partner
FirstName	–	varchar (64)	No	First Name of the user
LastName	–	varchar (64)	No	Last name of the user
FullName	–	varchar (128)	No	First and Last Name of the user
Email	–	varchar (128)	No	Email contact information for the user

Table A-24. Description of fields in the dbo.Validation table, which stores validation status (double-entry or manual) of pin and marker horizon data.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
UserID	FK References Users(ID)	int	No	Foreign Key to the User table
ValidationDate	–	datetime	No	Date the data was validated
ValidationState	–	varchar (100)	No	State of the Validation, either Validated or Manually Validated
Summary	–	varchar (500)	Yes	Freeform text to capture Validation notes

Appendix B. Data Dictionary for Lookup Tables

Table B-1. Description of fields in the Lkup_AnalysisReason table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
IsActive	–	bit	No	Flag to indicate if the Analysis Reason record is active for use
Label	–	varchar (100)	No	Common name for the Analysis Reason
Summary	–	varchar (500)	Yes	Full Description of the Analysis Reason

Table B-2. Description of fields in the Lkup_CardinalDirection table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
Code	–	varchar (5)	No	Up to five-character unique identifier of the Cardinal Direction
Label	–	varchar (30)	No	Common name for the Cardinal Direction
Summary	–	varchar (100)	Yes	Full Description of the Cardinal Direction

Table B-3. Description of fields in the Lkup_CoreConditionCode table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
SortOrder	–	int	Yes	Value assigned to record to control order displayed in GUI
Code	–	varchar (5)	No	Up to five-character unique identifier of the Core Condition Code
Label	–	varchar (30)	No	Common name for the Core Condition Code
Summary	–	varchar (100)	Yes	Full description of the Core Condition Code

Table B-4. Description of fields in the Lkup_CoreTypeCode table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
IsActive	–	bit	No	Flag to indicate if the Core Type Code record is active for use
Code	–	varchar (5)	No	Up to five-character unique identifier of the Core Type Code
Label	–	varchar (30)	No	Common name for the Core Type Code
Summary	–	varchar (100)	Yes	Full description of the Core Condition Code

Table B-5. Description of fields in the dbo.Lkup_DataProcessingLevel table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
ProcessOrder	–	tinyint	No	A number to indicate the order of progression for Data Processing Levels
IsActive	–	bit	No	Flag to indicate if the Data Processing Level record is active for use
Code	–	varchar (5)	No	Up to five-character unique identifier of the Data Processing Level
Label	–	varchar (20)	No	Up to five-character unique identifier of the Data Processing Level
Summary	–	varchar (400)	Yes	Full description of the Data Processing Level

Table B-6. Description of fields in the dbo.Lkup_DeviationCategory table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	Yes	Primary Key of table
Code	–	varchar (3)	Yes	Three-letter unique identifier of the category
Label	–	varchar (25)	Yes	Up to five-character unique identifier of the Data Processing Level
Summary	–	varchar (500)	Yes	Full description of the Data Processing Level

Table B-7. Description of fields in the dbo.Lkup_EquipmentType table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
Code	–	varchar (6)	No	Up to six-character unique identifier for the Equipment Type

Field Name	Key	Data Type	Required	Description
Label	–	varchar (30)	No	Common name for the Equipment Type
Summary	–	varchar (100)	Yes	Full description of the type of equipment

Table B-8. Description of fields in the dbo.Lkup_ImageType table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
TypeName	–	varchar (100)	No	Describes the type of image

Table B-9. Description of fields in the dbo.Lkup_MarkerHorizonMaterial table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
IsActive	–	bit	No	Flag to indicate if the Marker Horizon Material record is active for use
Code	–	varchar (5)	No	Up to five-character unique identifier for the Marker Horizon Material
Label	–	varchar (30)	No	Common name for the Marker Horizon Material
Summary	–	varchar (100)	Yes	Full description of the Marker Horizon Material

Table B-10. Description of fields in the dbo.Lkup_ObservationType table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
Code	–	varchar (5)	No	Up to five-character unique identifier for the Observation Type
Label	–	varchar (50)	No	Common name for the Observation Type
Summary	–	varchar (100)	Yes	Full description of the Observation Type

Table B-11. Description of fields in the dbo.Lkup_Organization table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
IsActive	–	bit	No	Flag to indicate if the Organization record is active for use
Code	–	varchar (5)	No	Up to five-character unique identifier for the Organization
Label	–	varchar (100)	No	Common name for the Organization
Summary	–	varchar (100)	Yes	Full description of the Organization

Table B-12. Description of fields in the dbo.Lkup_PinFlag table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
Code	–	varchar (5)	No	Up to five-character unique identifier for the Pin Flag
Label	–	varchar (30)	No	Common name for the of the Pin Flag
Summary	–	varchar (100)	Yes	Full description of the Pin Flag
NetworkCode	–	varchar (4)	Yes	Network that the pin flag is associated with.

Table B-13. Description of fields in the dbo.Lkup_PinMaterialCode table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
Code	–	varchar (5)	No	Up to five-character unique identifier for the Pin Material Code
Label	–	varchar (30)	No	Common name for the Pin Material Code
Summary	–	varchar (100)	Yes	Full description of the Pin Material Code
ID	PK	int	No	Primary Key of table
Code	–	varchar (5)	No	Up to five-character unique identifier for the Protected Status
Label	–	varchar (100)	No	Standard name for the Protected Status, in accordance with the IMD Standards
Summary	–	varchar (400)	Yes	Full description of the Protected Status

Table B-14. Description of fields in the dbo.Lkup_ReadType table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
IsActive	–	bit	No	Flag to indicate if the Read Type record is active for use
Label	–	varchar (100)	No	Common name for the Read Type
Summary	–	varchar (100)	Yes	Full description of the Read Type

Table B-15. Description of fields in dbo.RodMethodOfInstall in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
IsActive	–	bit	No	Flag to indicate if the Rod Method of Install record is active for use
Name	–	varchar (50)	No	Common Name of Rod
Manufacturer	–	varchar (50)	No	Name of Company who has manufactured the rod
OperationofTool	–	varchar (50)	No	How the tool is used functionally
Typicaldepthof mark	–	varchar (30)	No	Target depth of Rod in meters
ID	PK	int	No	Primary Key of table
IsActive	–	bit	No	Flag to indicate if the Rod Method of Install record is active for use

Table B-16. Description of fields in the dbo.Role table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
Name	–	varchar (64)	No	Name of the role; Data Contributor or Project Manager

Table B-17 Description of fields in the dbo.Staff table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
OrganizationID	FK References Lkup_Organization(ID)	int	No	Foreign Key to the Organization lookup table
ProtectedStatusID	FK References Lkup_ProtectedStatus(ID)	int	No	Foreign Key to the Protected Status lookup table to indicate the sensitivity of the record
IsActive	–	bit	No	Flag to indicate if the Staff member is an active person
FirstName	–	varchar (100)	No	First Name of the Staff person
LastName	–	varchar (100)	No	Last Name of the Staff person
EmailAddress	–	varchar (100)	Yes	Email contact information for the Staff user
NetworkCode	–	varchar (4)	No	The Network the Staff worker belongs to

Table B-18. Description of fields in the dbo.TimeZone table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
ID	PK	int	No	Primary Key of table
DisplayName	–	nvarchar (200)	No	Name of the Time Zone
ZoneID	–	nvarchar (200)	No	Full description of the Time Zone

Table B-19. Description of fields in the dbo.TZCalendar table in the SET Monitoring Database.

Field Name	Key	Data Type	Required	Description
Year	–	PK(date)	No	Beginning of Calendar Year entry
UTC_DST_Start	–	smalldatetime	No	Date when Daylight Savings Time begins in UTC format
UTC_DST_End	–	smalldatetime	No	Date when Daylight Savings Time end in UTC format
ET_DST_Start	–	smalldatetime	Yes	Date when Daylight Savings Time begins
ET_DST_End	–	smalldatetime	Yes	Date when Daylight Savings Time ends

Appendix C. Database Constraints

Table C-1. Description of all database constraints in the SET Monitoring Database.

Foreign Key Constraint Name	Foreign Table	Foreign Columns	Referenced Table	Ref. Columns
Lkup_CoreConditionCode_Core_FK	dbo.Core	CoreConditionCodeID	dbo.Lkup_CoreConditionCode	ID
CoreEvent_Core_FK	dbo.Core	CoreEventID	dbo.CoreEvent	ID
MarkerHorizon_Core_FK	dbo.Core	MarkerHorizonID	dbo.MarkerHorizon	ID
Lkup_CoreTypeCode_CoreEvent_FK1	dbo.CoreEvent	CoreTypeCodeID	dbo.Lkup_CoreTypeCode	ID
Event_CoreEvent_FK1	dbo.CoreEvent	EventID	dbo.Event	ID
Staff_CoreEvent_FK1	dbo.CoreEvent	Reader_StaffID	dbo.Staff	ID
Staff_CoreEvent_FK2	dbo.CoreEvent	Recorder_StaffID	dbo.Staff	ID
CoreEvent_Validation	dbo.CoreEvent	ValidationID	dbo.Validation	ID
Core_CoreObservation_FK1	dbo.CoreObservation	CoreID	dbo.Core	ID
FK__Deviation__Event__2C09769E	dbo.Deviations	EventID	dbo.Event	ID
Lkup_EquipmentType_Equipment_FK1	dbo.Equipment	EquipmentTypeID	dbo.Lkup_EquipmentType	ID
Lkup_DataProcessingLevel_Event_FK1	dbo.Event	DataProcessingLevelID	dbo.Lkup_DataProcessingLevel	ID
User_Event_FK1	dbo.Event	DataProcessingLevelUserID	dbo.Users	ID
Station_Event_FK1	dbo.Event	StationID	dbo.Station	ID
FK_EventImage_EventID	dbo.EventImage	EventID	dbo.Event	ID
FK_EventImage_ImageID	dbo.EventImage	ImageID	dbo.Image	ID
Lkup_CardinalDirection_Image_FK1	dbo.Image	CardinalDirectionID	dbo.Lkup_CardinalDirection	ID
Lkup_ImageType_Image_FK1	dbo.Image	ImageTypeID	dbo.Lkup_ImageType	ID

Foreign Key Constraint Name	Foreign Table	Foreign Columns	Referenced Table	Ref. Columns
Staff_Image_FK1	dbo.Image	PhotographerStaffID	dbo.Staff	ID
Lkup_MarkerHorizonMaterial_MarkerHorizon_FK1	dbo.MarkerHorizon	MarkerHorizonMaterialID	dbo.Lkup_MarkerHorizonMaterial	ID
Station_MarkerHorizon_FK1	dbo.MarkerHorizon	StationID	dbo.Station	ID
Staff_MonitoringProgramLeadStaff_FK1	dbo.MonitoringProgramLeadStaff	StaffID	dbo.Staff	ID
Lkup_PinMaterialCode_Pin_FK1	dbo.Pin	PinMaterialCodeID	dbo.Lkup_PinMaterialCode	ID
PinCollection_PinCollectionPin_FK1	dbo.PinCollectionPin	PinCollectionID	dbo.PinCollection	ID
Pin_PinCollectionPin_FK1	dbo.PinCollectionPin	PinID	dbo.Pin	ID
ExcludeCumulativeAnalysisReasonID_PinFlagCollection	dbo.PinFlagCollection	ExcludeCumulativeAnalysisReasonID	dbo.Lkup_AnalysisReason	ID
ExcludeCumulativeAnalysisUserID_PinFlagCollection	dbo.PinFlagCollection	ExcludeCumulativeAnalysisUserID	dbo.Users	ID
ExcludeIntervalAnalysisReasonID_PinFlagCollection	dbo.PinFlagCollection	ExcludeIntervalAnalysisReasonID	dbo.Lkup_AnalysisReason	ID
ExcludeIntervalAnalysisUserID_PinFlagCollection	dbo.PinFlagCollection	ExcludeIntervalAnalysisUserID	dbo.Users	ID
PinObservation_PinFlagCollection_FK1	dbo.PinFlagCollection	PinObservationID	dbo.PinObservation	ID
SETDirection_PinObservation_FK1	dbo.PinObservation	SETDirectionID	dbo.SETDirection	ID
PinFlagCollection_PinObservationFlags_FK1	dbo.PinObservationFlags	PinFlagCollectionID	dbo.PinFlagCollection	ID
Lkup_PinFlag_PinObservationFlags_FK1	dbo.PinObservationFlags	PinFlagID	dbo.Lkup_PinFlag	ID
Station_PipeDirectionCode_FK1	dbo.PipeDirectionCode	StationID	dbo.Station	ID
PipeDirectionCode_SETDirection_FK1	dbo.SETDirection	PipeDirectionCodeID	dbo.PipeDirectionCode	ID

Foreign Key Constraint Name	Foreign Table	Foreign Columns	Referenced Table	Ref. Columns
SETEvent_SETDirection_FK1	dbo.SETDirection	SETEventID	dbo.SETEvent	ID
Equipment_SETEvent_FK1	dbo.SETEvent	EquipmentID	dbo.Equipment	ID
Event_SETEvent_FK1	dbo.SETEvent	EventID	dbo.Event	ID
Lkup_ObservationType_SETEvent_FK1	dbo.SETEvent	ObservationTypeID	dbo.Lkup_ObservationType	ID
PinCollection_SETEvent	dbo.SETEvent	PinCollectionID	dbo.PinCollection	ID
Lkup_ReadType_SETEvent	dbo.SETEvent	ReadTypeID	dbo.Lkup_ReadType	ID
Staff_SETEvent_FK1	dbo.SETEvent	SETReader_StaffID	dbo.Staff	ID
Staff_SETEvent_FK2	dbo.SETEvent	SETRecorder_StaffID	dbo.Staff	ID
SETEvent_Validation	dbo.SETEvent	ValidationID	dbo.Validation	ID
Lkup_Organization_Staff_FK1	dbo.Staff	OrganizationID	dbo.Lkup_Organization	ID
Lkup_ProtectedStatus_Staff_FK1	dbo.Staff	ProtectedStatusID	dbo.Lkup_ProtectedStatus	ID
Lkup_DataProcessingLevel_Station_FK1	dbo.Station	DataProcessingLevelID	dbo.Lkup_DataProcessingLevel	ID
User_Station_FK1	dbo.Station	DataProcessingLevelUserID	dbo.Users	ID
Equipment_Station_FK	dbo.Station	DefaultEquipmentID	dbo.Equipment	ID
PinCollection_Station	dbo.Station	DefaultPinCollectionID	dbo.PinCollection	ID
Lkup_ProtectedStatus_Station_FK1	dbo.Station	ProtectedStatusID	dbo.Lkup_ProtectedStatus	ID
RodMethodOfInstall_Station_FK1	dbo.Station	RodMethodOfInstallID	dbo.RodMethodOfInstall	ID
Site_Station_FK1	dbo.Station	SiteID	dbo.Site	ID
FK_StationImage_ImageID	dbo.StationImage	ImageID	dbo.Image	ID
FK_StationImage_StationID	dbo.StationImage	StationID	dbo.Station	ID
FK_UserRole_Role	dbo.UserRole	RoleID	dbo.Role	ID

Foreign Key Constraint Name	Foreign Table	Foreign Columns	Referenced Table	Ref. Columns
FK_UserRole_User	dbo.UserRole	UserID	dbo.Users	ID
Validation_User	dbo.Validation	UserID	dbo.Users	ID
Lkup_CoreConditionCode_Core_FK	dbo.Core	CoreConditionCodeID	dbo.Lkup_CoreConditionCode	ID

Appendix D. Database Views Fields and Aliases

Table D-1. Table fields and aliases in the vw_dbx_marker_horizon_data view in the SET Monitoring Database.

Field Name	Alias
Unit.SSRs.ParkswNetwork.NetworkCode	network_code
Unit.SSRs.ParkswNetwork.Network	network_name
Site.ParkOrRefugeCode	park_code
Unit.SSRs.Units.UnitName	park_name
Site.Name	site_name
Station.Code	station_code
Station.Name	station_name
Event.EventDateTimeUTC	event_date_utc
Staff.LastName,Staff.FirstName	reader_name
MarkerHorizon.MarkerHorizonLabel	marker_horizon_name
CoreObservation.ObservationNumber	core_measurement_number
CoreObservation.DepthToBenchmark_mm	core_measurement_depth_mm
Lkup_CoreTypeCode.Label	core_type
Lkup_CoreConditionCode.label	core_condition
CoreEvent.Notes	core_event_notes
Core.Notes	core_notes
MarkerHorizon.DateEstablished	established_date
MarkerHorizon.DateRetired	retired_date
Validation.ValidationState	validation_status
Validation.ValidationDate	validation_date
Users.FullName	validation_name
Lkup_DataProcessingLevel.Label	dpl

Table D-2. Table fields and aliases in the vw_dbx_SET_pin_information view in the SET Monitoring Database.

Field Name	Alias
Pin.NetworkCode	network_code
Unit.SSRs.ParkswNetwork.Network	network_name
PinCollection.Label	group_label
Pin.Label	pin_label
Lkup_PinMaterialCode.Label	pin_material
Pin.PinPosition	pin_position
Pin.Length_mm	pin_length_mm
Pin.Diameter_in	pin_diameter_in
dbo.Pin.IsFootPresent	foot_present
dbo.Pin.FootDiameter_in	foot_diameter_in
PinCollection.DateCreated	group_created_date
PinCollection.DateRetired	group_retired_date
PinCollection.IsRetired	group_isretired

Table D-3. Table fields and aliases in the ssrs.vw_dbx_SET_Data_FINAL view in the SET Monitoring Database.

Field Name	Alias
Unit.SSRS.ParkswNetwork.NetworkCode	network_code
Unit.SSRS.ParkswNetwork.Network	network_name
Site.ParkOrRefugeCode	park_code
Unit.SSRS.Units.UnitName	park_name
Site.Name	site_name
Station.Code	station_code
Station.Name	station_name
Event.EventDateTimeUTC	event_date_UTC
Event.EventDateTimeUTC	event_time_UTC
SETEvent.SETReader_StaffID.LastName,FirstName	SET_reader
SETEvent.SETReader_StaffID.LastName,FirstName	SET_recorder
dbo.Equipment.Name	SET_instrument
dbo.PipeDirectionCode.AzimuthDegrees	SET_direction_azimuth
dbo.PipeDirectionCode.code	SET_direction
dbo.Pin.PinPosition	pin_position
dbo.PinObservation.PinHeight_mm	pin_height_mm
ET_offset_mm + pin_height_mm - pin_length_mm	standardized_soil_elev_mm
station_elev_m + (SET_offset_mm + pin_height_mm - pin_length_mm)/1000	soil_elev_m
dbo.Lkup_PinFlag.Code	pin_flag_code
dbo.Lkup_PinFlag.[Label]	pin_flag
PinFlagCollection.Notes	pin_flag_notes
SETEvent.VegetationNotes	vegetation_notes
SETDirection.Notes	SET_direction_notes
SETEvent.Notes	SET_notes
Lkup_ObservationType.Label	observation_type
Lkup_ReadType.Label	double_read_type

Field Name	Alias
Lkup_DataProcessingLevel.Label	dpl_label
Event.DataProcessingLevelNote	dpl_note
dbo.PinCollection.Label	pin_collection
dbo.Pin.Label	pin_label
dbo.Pin.Length_mm	pin_length_mm
dbo.Station.Elevation_m	station_elev_m
dbo.station.ElevationDatum	station_datum
dbo.Equipment.Offset_mm	SET_offset_mm
Validation.ValidationState	validation_status
Validation.ValidationDate	validation_date
Validation.ValidationDate	validation_time
Users.FullName	validation_name
dbo.PinFlagCollection.ExcludeIntervalAnalysisUserID	exclude_int_user_ID,
dbo.Users.FullName	exclude_int_user,
dbo.PinFlagCollection.ExcludeIntervalAnalysisReasonID	exclude_int_reason_ID,
dbo.Lkup_AnalysisReason.[Label]	exclude_int_reason,
dbo.PinFlagCollection.ExcludeIntervalAnalysisDate	exclude_int_date,
dbo.PinFlagCollection.ExcludeCumulativeAnalysisUserID	exclude_cumul_user_ID,
dbo.Users.FullName	exclude_cumul_user,
dbo.PinFlagCollection.ExcludeCumulativeAnalysisReasonID	exclude_cumul_reason_ID,
dbo.Lkup_AnalysisReason.[Label]	exclude_cumul_reason,
dbo.PinFlagCollection.ExcludeCumulativeAnalysisDate	exclude_cumul_date

Table D-4. Table fields and aliases in the ssrs.vw_vw_dbx_stations view in the SET Monitoring Database.

Field Name	Alias
Unit.SSRS.ParkswNetwork.NetworkCode	network_code
Unit.SSRS.ParkswNetwork.Network	network_name
Site.ParkOrRefugeCode	park_code
Unit.ssrs.Units.UnitName	park_name
Site.Name	site_name
Station.Code	station_code
Station.Name	station_name
Station.Latitude	station_latitude
Station.Longitude	station_longitude
Station.LocationDatum	station_datum
Station.RodDepth_m	SET_depth_m
Station.DateEstablished	SET_date_established
Station.DateRetired	SET_date_retired
Station.DateRetired	station_status
Lkup_ProtectedStatus.Label	protected_status
Station.Description	notes

Table D-5. Table fields and aliases in the ssrs.vw_vw_dbx_critical_information view in the SET Monitoring Database.

Field Name	Alias
Unit.SSRs.ParkswNetwork.NetworkCode	network_code
Unit.SSRs.ParkswNetwork.Network	network_name
Site.ParkOrRefugeCode	park_code
Unit.ssr.s.Units.UnitName	park_name
Site.Name	site_name
Station.Code	station_code
Station.Name	station_name
Event.EventDateTimeUTC	event_date_utc
Lkup_DeviationCategory.Code	category_code
Lkup_DeviationCategory.[Label]	category_label
Deviations.Details	detail

Table D-6. Table fields and aliases in the ssrs.vw_dbx_events view in the SET Monitoring Database.

Field Name	Alias
Unit.SSRs.ParkswNetwork.NetworkCode	network_code
Unit.SSRs.ParkswNetwork.Network	network_name
Site.ParkOrRefugeCode	park_code
Unit.ssr.sUnits.UnitName	park_name
Site.Name	site_name
Station.Code	station_code
Station.Name	station_name
Event.EventDateTimeUTC	event_date.UTC
Event.EventDateTimeUTC	event_time.UTC
Event.InundationLevel_cm	inundation_level_cm
Lkup_DataProcessingLevel.[Label]	DPL
Event.PinDataExist	pin_data_collected
Event.ReplicatePinDataExist	double_read_pin_collected
Event.NoCoreData	marker_horizon_data_collected
Event.NoCoreDataNotes	marker_horizon_data_not_collected_reason
Event.EventNotes	event_notes